

THE
ARCHITECT
& BUILDING NEWS

16 SEPTEMBER 1959

VOL. 216

NO. 6

ONE SHILLING WEEKLY

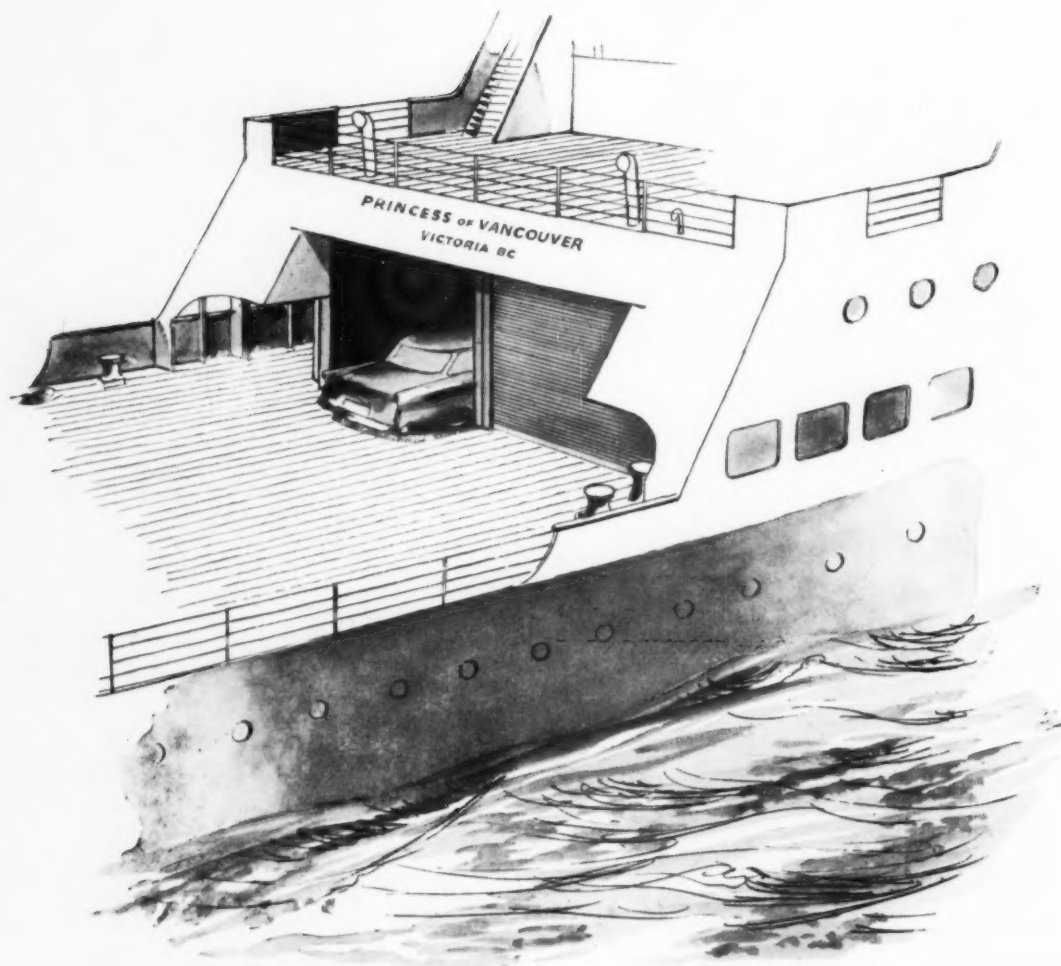
- OFFICES FOR BOWATERS
- POLICE STORE BUILDING
- INFORMATION DIGEST

PUBLISHED IN LONDON SINCE 1854



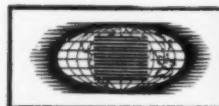
goes to sea

The last car rolls aboard down come the huge shutters, and another trip begins for the "Princess of Vancouver." Brady Steel Rolling Doors are suitable for any size or kind of opening. They are designed for strength and trouble-free operation which guarantee a hundred per cent performance even in the most rigorous conditions and justify absolute confidence in their security. Hand or power operated, they are available singly or in series. Send for illustrated leaflet S/2/SS353.



G. Brady & Company Limited, Manchester, 4. Telephone COLlyhurst 2797/8.

BRADY FOR EVERY OPENING: BRADY ROLLING DOORS IN STEEL, WOOD AND ALUMINIUM . SLIDING SHUTTER DOORS . GRILLES IN STEEL, ALUMINIUM OR NYLON . UP AND OVER DOORS . FIREPROOF DOORS . COLLAPSIBLE GATES . SLIDING DOOR GEAR



BRADY
SHUTTERS · ROLLING DOORS

THE DOORS COMMANDING THE WORLD'S LARGEST SALE—
London, Birmingham, Glasgow, Montreal, Port Credit, Hong Kong.

Though surfaces vary . . .

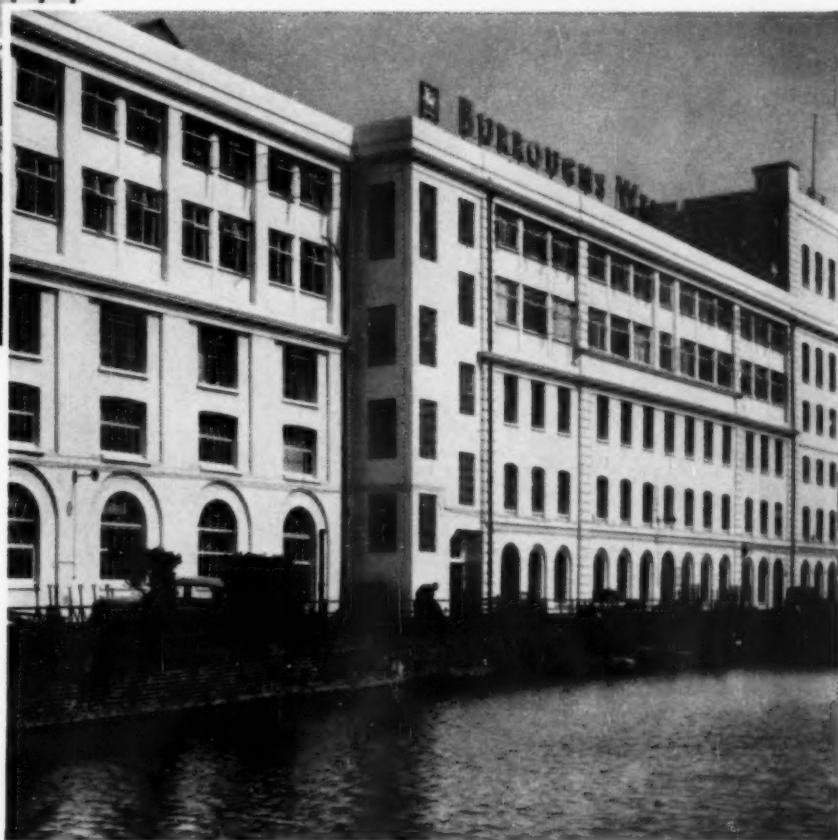
the specification

remains the same



(Artist's impression)

The "beauty" of Number Seven decorative finishes is two-fold—their lasting "eye" appeal and their unique variety of applications both interior and exterior. With the suitable primer you can now specify Number Seven Exterior Flat Finish for nearly every standard surface—wood, metal, brick, plaster, concrete—and thus eliminate estimating and ordering complications as well as time wasted in mixing and matching colours. An impressive list of recent contracts is proof of Number Seven's outstanding success in all types of contracts.



Specified by the Chief Engineer, Burroughs Wellcome & Co. Ltd. Dartford.

Contractors: L. H. Mildwater and Sons, Woolwich



NUMBER SEVEN

NUMBER NINE

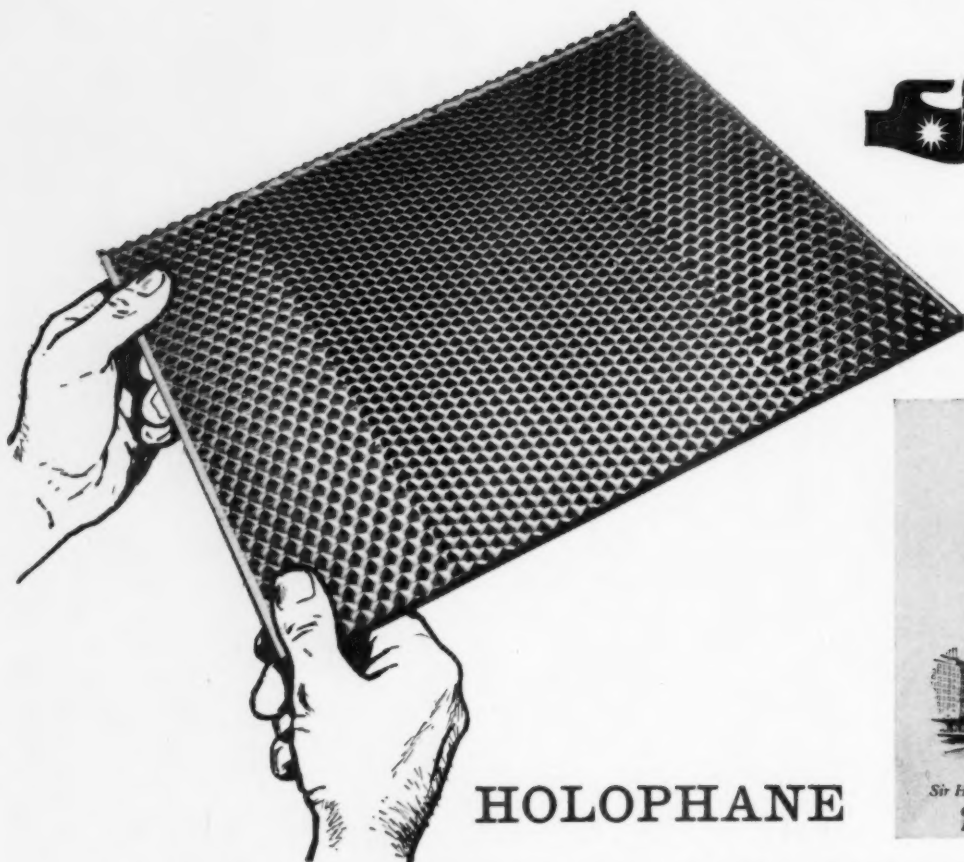
Where a textured finish is desired, Cementone No. 9 Waterproof Stoneface Composition is exclusively prepared for brick, cement rendering, reinforced concrete, asbestos-cement, plaster, and compo-board surfaces. Alkali-resistant, No. 9 matures to a natural stone finish and is available in ten colours.

Number Seven is available in a range of fifty-four matching colours as a gloss, satin or interior and exterior flat finish. Write for colour card and standard specifications.

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ILLUMINATING
ENGINEERING SOCIETY
1909/1909



Architect:
Sir Howard Robertson, A.R.A.
Consulting Engineers:
Ewbank and Partners

HOLOPHANE

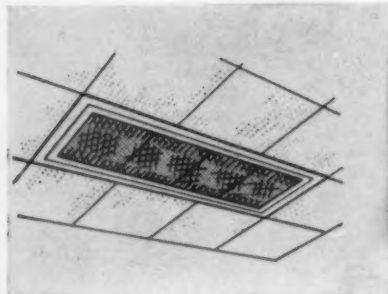
CONICAL PRISM GLASS LENS PLATES

FOR THE NEW SHELL BUILDING

Over 50,000 individual glasses are being supplied for the fluorescent lighting installations in the new Shell project on the South Bank. These plates have been specially designed by Holophane for use in flush mounting *fittings at relatively low mounting heights, to give a brightness control and semi cut-off angles above 50 degrees from the vertical.

Once again Holophane has provided a scientific answer to a lighting problem that only long experience can overcome. Ask for latest catalogues on Holophane fluorescent, industrial and commercial lighting systems.


**(Fittings will be supplied by A.E.I., Philips and Courtney Pope).*



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THE PERMANENCE OF THE PRISM

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only when it finds the ideal outlet.
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may itself be a powerful stimulus.

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Rich harmonies or the occasional
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Granwood Floors for Under-Floor Heating

Granwood Composition block flooring is eminently suitable for use over all forms of under-floor heating and has been laid in this connection for well over thirty years with entire satisfaction. It has also been used extensively in conjunction with the now popular embedded electrical systems. As Granwood is laid direct in a cement and sand screed and becomes monolithic with the floor slab the problem of softening and deterioration of the adhesive due to heat does not arise.

A few TECHNICAL details of GRANWOOD FLOORING—the ideal floor covering medium:
Specific heat 0.33: K value 2.2 B.t.u./sq. ft./hr./°F. Diff./l in. thickness. Density 98 lbs./cu. ft.

Please write for illustrated leaflet.

Granwood Flooring Co. Ltd. is a member of the British Steel Constructions Group of Companies.

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56

contracts

from the

de Havilland

AIRCRAFT COMPANY LIMITED

for

COLT

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Time and again, industrialists large and small place repeat orders with Colt. And for three good reasons. Colt ventilation systems depend in the main on internal convection currents—not external forces—and are therefore little affected by the vagaries of the wind. Colt offer an unparalleled range of ventilators. And most important, every Colt recommendation is based on a thorough analysis of the building, plant and process either from a site survey or drawings. Such thoroughness influences firms such as the de Havilland Aircraft Co. Ltd. It will impress you, too. Send for a free manual to Dept. AW33/9.



Among the 12,000 major Industrial Organisations using Colt equipment are:

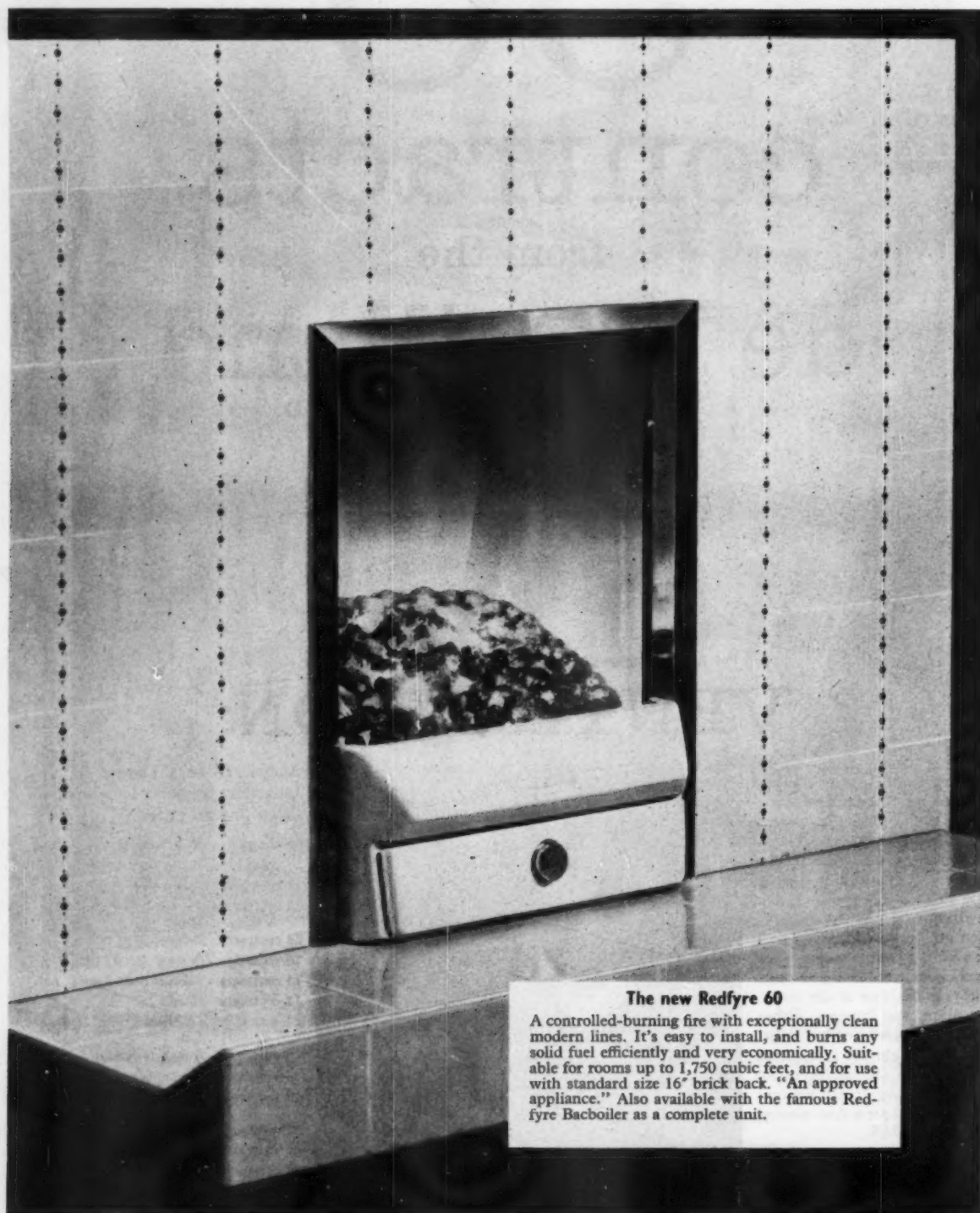
- 25 contracts: *British Oxygen Co. Ltd.*
- 16 contracts: *Cow & Gate Ltd.*
- 16 contracts: *Dorman Long & Co. Ltd.*
- 12 contracts: *English Steel Corporation Ltd.*
- 14 contracts: *Ferranti Ltd.*
- 16 contracts: *General Motors Ltd.*
- 11 contracts: *Thomas Hedley & Co. Ltd.*
- 16 contracts: *Hoover Ltd.*
- 22 contracts: *Lever Bros., Port Sunlight Ltd.*
- 9 contracts: *Joseph Lucas Ltd.*
- 20 contracts: *National Coal Board*
- 19 contracts: *Phillips Electrical Industries Ltd.*
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HATFIELD

COLT VENTILATION LIMITED · SURBITON · SURREY · TELEPHONE: ELMBRIDGE 0161 (10 LINES)

Now! Redfyre gives you



The new Redfyre 60

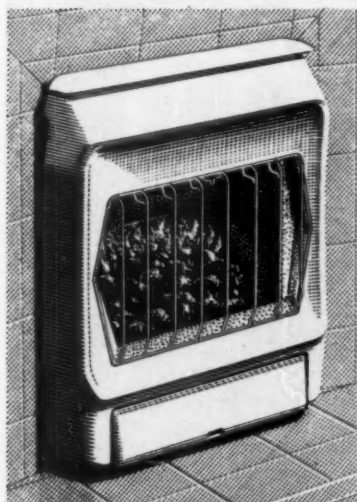
A controlled-burning fire with exceptionally clean modern lines. It's easy to install, and burns any solid fuel efficiently and very economically. Suitable for rooms up to 1,750 cubic feet, and for use with standard size 16" brick back. "An approved appliance." Also available with the famous Redfyre Bacboiler as a complete unit.

low-cost heating with *top-designer looks*

Redfyre, whose famous Bacboilers put them years ahead in low-cost heating, now take the lead in tackling a new problem: matching really low cost with the best modern design. Styled to merge successfully with contemporary room schemes, the new Redfyres are equally suitable for modernising old property or for new build-

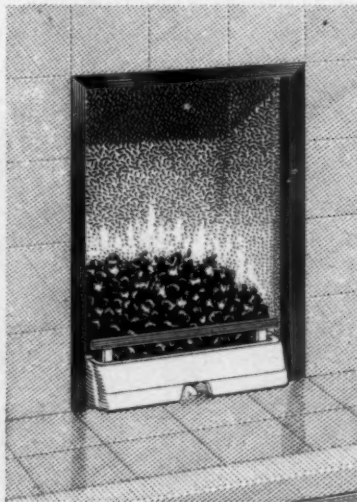
ing. And, as you'd expect from Redfyre, the whole range is very practical, very economical and remarkably low in initial cost.

Write for the REDFYRE HANDBOOK—a handy folder containing full specification sheets of all Redfyre products. The Redfyre mailing service will keep your handbook up to date *automatically*.



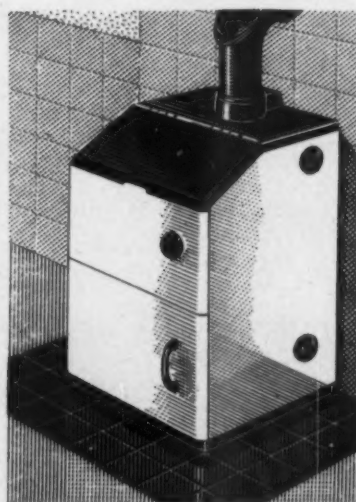
Redfyre Convector No. 2

A superb new open convector fire which gives two-way warmth, by radiation and convection. An adjustable throat restrictor increases efficiency still further, giving far more comfort from far less fuel. It burns a wide range of fuels and is easy to install in almost any fireplace opening—no fire back is necessary. Suitable for rooms up to 2,000 cubic feet. "An approved appliance."



New Hearth Redfyre

An efficient new fire with under-floor air feed for extra warmth, fewer draughts. The Hearth Redfyre gives economical, easy-to-control heating for rooms up to 1,750 cubic feet. Suitable for use with standard size 16" brick back, and for openings from 18-21 in. high. "An approved appliance." Also available with the famous Redfyre Bacboiler as a complete unit.



New Magazine Boiler

For hot water and radiators. Magazine feed-automatic control by thermostat. Compact and very efficient, the Magazine Boiler runs on any smokeless fuel. Continuous Heating Rating: 20,000 B.Th.U's/hr. Domestic Hot Water Rating: 35,000 B.Th.U's/hr. "An approved appliance."



NEWTON CHAMBERS & COMPANY LIMITED, REDFYRE PRODUCTS, THORNCLIFFE, SHEFFIELD



'Durever' p.v.c. flooring made by British Mouldex Ltd., Wellingborough, in the entrance hall of a large laboratory.

When flooring is made from p.v.c.

It's better made from I.C.I. 'Corvic'

WHEN you use 'Corvic' p.v.c. polymers you benefit from the finest research and technical service in the country. I.C.I. put that service at the disposal of all users of p.v.c. Indeed, even if you are only considering using

p.v.c. I.C.I. will be glad to help you.

The illustration shows p.v.c. flooring in a large laboratory. It is handsome, hard-wearing, easy to clean and maintain. The p.v.c. used by British Mouldex Ltd., is 'Corvic' — there is none better.

'CORVIC'

'Corvic' is the registered trade mark for the p.v.c. polymers manufactured by I.C.I.

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PC26/1



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Door sizes,
PERFORATED AND
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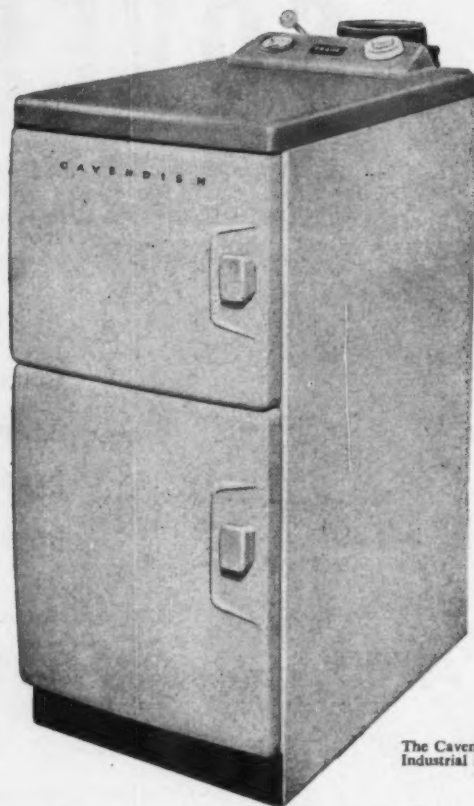
HEAD OFFICE: Aldwych House
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NEWCASTLE: Northumbria House
Portland Terrace, 2 · Newcastle 81-4323 (2 lines)

SCOTLAND: S. H. NUNN · Eglinton House
Eglinton Estate · Kilwinning · Ayrshire · Kilwinning 284



There never was a better looking, cleaner working, more efficient central heating boiler than the new **CRANE CAVENDISH**



The Cavendish Boiler has been accepted by The Council of Industrial Design for display in The Design Centre, London

- A range of solid fuel burning boilers* for whole house warming and indirect hot water supply.
- Elegant and labour-saving design.
- Attractive colour range to match most schemes.
- Rocking grate of new design.
- Ultra-sensitive thermostat (on solid fuel models only) and thermometer sensibly placed near flue control.
- The beautifully finished stove-enamelled jacket is so designed as to necessitate only one set of doors for riddling and fuelling.
- Large capacity ashpan effectively dust-sealed.
- Doors opening to wide angle.

* Also available for oil burning.

RATINGS

OUTPUT B.t.u. PER HOUR

Solid fuel boiler	No. 3.....	33,000
	No. 4.....	47,000
	No. 5.....	61,000
Oil burning boiler	No. 3L.....	30,000
	No. 4L.....	45,000
	No. 5L.....	60,000

A FULLY INFORMATIVE LEAFLET is available on application to
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LONDON, E.C.4. WORKS: IPSWICH
Branches: Birmingham, Brentford, Bristol, Glasgow, London, Manchester

G.9

ISOLATION

ventilates built-up roofs

An entirely
new technique by
RUBEROID

Two innovations make Ruberoid Rubervent a built-up roof that is revolutionary in both design and effect: it *isolates* the weather-proofing from substructure surface hair cracks and *ventilates* the substructure so that vapour pressures may disperse through fully communicating spaces. Rubervent, using glass fibre based bitumen materials, is inorganic and inert. The first layer is coated on the underside with coarse mineral granules. These granules support it uniformly and isolate it from the substructure, thus allowing water vapour and gases to disperse over the entire roof area and ultimately to the exterior atmosphere. Any blistering which might otherwise result from this cause is prevented. All layers are bonded together and to the substructure simultaneously thus avoiding the risk of damp and dirt between the layers. Rubervent is based on the practical experience of associated Ruberoid companies in Europe.

UNDERSIDE VIEW

of Rubervent showing granule underside which allows dispersal of vapour to exterior, and the adhesion points which fix the entire specification to the substructure.

AUTOMATIC ADHESION

The Rubervent roof is fixed to the substructure by 'rivets' of bitumen the positions of which are determined during manufacture and not on site. This provides a rational system of adhesion points whilst maintaining substantial isolation from the substructure.

Rubervent

USES For all substructures to which bitumen will bond, i.e. non-nailable materials — particularly insulating concretes.

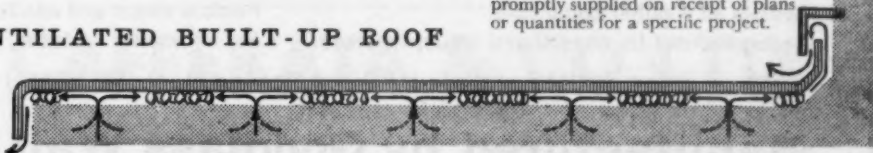
SPECIFICATIONS 2 or 3-layer for pitched, flat or curved roofs.

FINISHES Mineral Surfaced Glass Fibre Based Ruberoid Roofing, Rubervent Mineral Topping or Ruberdal Tiles.

FIXING Rubervent roofs are supplied and fixed only by the Contract Division of The Ruberoid Company.

COST A firm estimate for the supply and fixing of Rubervent will be promptly supplied on receipt of plans or quantities for a specific project.

ISOLATED & VENTILATED BUILT-UP ROOF



For technical literature and model, write to

THE RUBEROID COMPANY LIMITED 69, COMMONWEALTH HOUSE, 1-10 NEW OXFORD ST., LONDON, WC1

CS17

The Perfect Combination

Combinol Gloss Paint

and

Valspar Eggshell Lustre

Combinol Gloss Paint

Tough — Brilliant — High Gloss Finish.
Excellent spreading power and opacity.
Resists all weather conditions.
Recommended for coastal and industrial areas.

Valspar Eggshell Lustre

Beautiful Eggshell Lustre Finish.
Easy to apply with wide brush, roller or spray.
Resists steam and condensation.
For all interior surfaces.

Also available in the British Standard Range (101 colours)

Manufactured by Goodlass Wall & Co Ltd

This architect is protecting
YOU
against the hazards of fire



by
SPECIFYING

"Murilite"
REGD. TRADE MARK
**PRE-MIXED
PERLITE PLASTER**

"Murilite" Pre-mixed Perlite Plaster is a combination of the well-known "Murite" Gypsum Plaster with Expanded Perlite, an aggregate of extreme lightness. This aggregate is incorporated in the factory, thus ensuring that proportions and mixing are always correct. The use of Perlite as the aggregate provides many advantages, such as extreme lightness, remarkable workability and improved thermal insulation and fire resisting properties.

Gypsum Plaster is one of the finest fire resisting materials known to the Building Industry, but when Perlite is incorporated as in "Murilite" Pre-mixed Perlite Plaster, its fire resistance is greatly increased. This outstanding quality of fire resistance is amply borne out by the high fire ratings awarded by the Fire Research Station, as a result of tests carried out on various types of structure.

Write to the address shown below for complete details of these fire rating tests made in accordance with British Standard Definitions No. 476:1953.



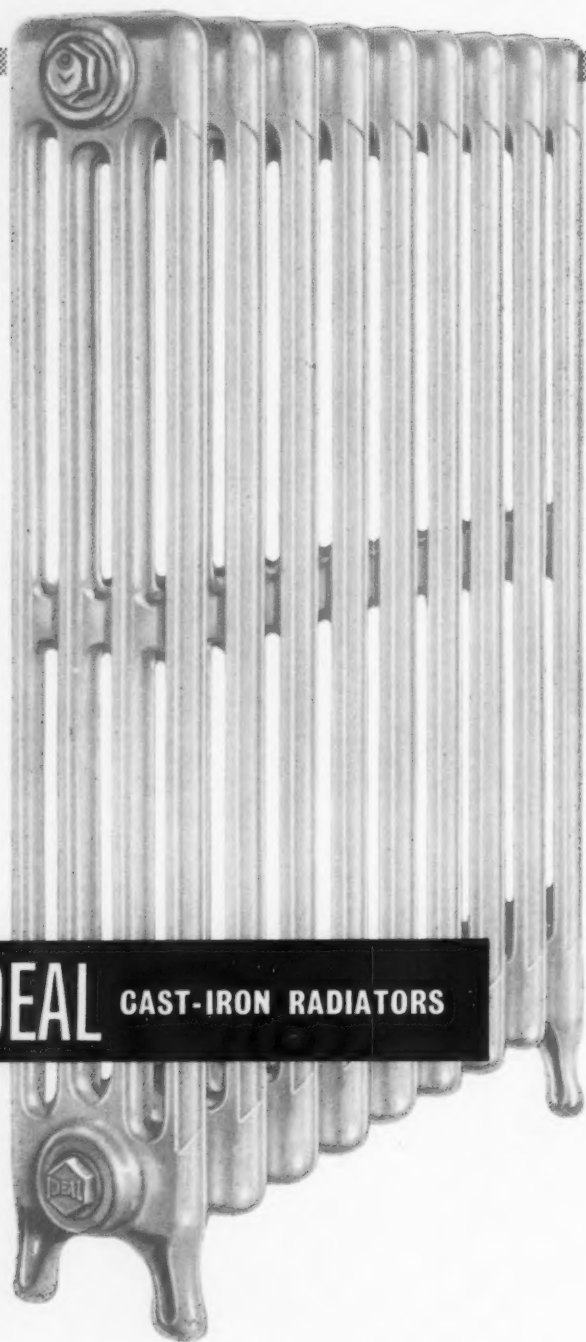
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TELEGRAMS "CAFFERATA" NEWARK

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IDEAL CAST-IRON RADIATORS

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they resist corrosion,

Ideal cast-iron radiators have

an exceptionally long life.

This is further ensured by their strength and accuracy of construction.

Then there is the advantage of

high heat transmission.

And when adaptability is considered,

Ideal column radiators offer the advantages of sectional construction

not only at the planning stage

but at all times.

After installation it is quite simple

to 'make and break' the radiators

to add or remove sections.

Pictured is the Ideal No. 4 Neo-Classic Radiator.

The Neo-Classic is available with two, four or six columns per section and in four heights.



Manufactured by

IDEAL BOILERS & RADIATORS LIMITED • IDEAL WORKS • HULL

Tubewrights' Structures

for
economy
and ease of
erection



Top: General view of trusses and triangular girders of the tubular steel roof work.

Centre: Connection of roof trusses and triangular girders to column.

Below: An exterior view of the warehouse.



Tubewright's welded tubular steel structures can be quickly erected and show a substantial saving in first cost, especially when of a standard design. They give a high strength/weight ratio and can be adapted for many industrial requirements.

The Harris Lebus furniture warehouse at Tottenham—with an area of nearly a quarter of a million square feet—is a Tubewright structure. The Architects were Messrs. Clifford Tee & Gale and the Consulting Engineers were Thomas Bedford & Partners.



Regd. Trade Mark

Enquiries to:

TUBEWRIGHTS LTD

EGGINTON HOUSE, 25 BUCKINGHAM GATE, LONDON, S.W.1

Telephone: Victoria 9941



LITTLE BOYS ARE SEEN BUT



THANKS TO **Module Ceilings** of

NOT HEARD (MUCH)

There's a calmer atmosphere about the Shepphelbury Secondary Modern School since a Bowater Module Ceiling went up. The dear boys still drop things every few seconds, but the resulting crash is not so resounding as it used to be and the babel of voices in the dining hall almost makes sense. Day-dreamers looking up for inspiration in class get it from the sight of all those T/A Panels. A school is a natural for a Bowater Module Ceiling. But so too are shops and stores, cafes and canteens, hospitals, libraries, offices and public buildings of almost every kind. Wherever there's a need to keep the noise down and the tone of the building up, many architects now specify a Bowater Module Ceiling made of Bowater T/A Panels. Do you?

THE FACTS ABOUT THIS INSTALLATION—

ARCHITECTS	Architects Department Herts County Council
FIXING CONTRACTORS	Messrs. D & A McKnight Ltd
METHOD OF FIXING	Nailed
AREA COVERED	203 square yards
NUMBER OF PANELS	457
COLOUR OF PANELS	White
	Panels spline-spaced to avoid cutting: i.e. approx. 1½" width spacing splines used in one direction, leaving a ½" width spline visible. Colour of splines white.
DATE COMPLETED	July 1958

PERFORMANCE AND PRICE

Acoustic performance: Bowater Module Ceilings can cut sound energy by 68% in shops and stores; by 84% in offices; by 94% in cafes, canteens, and restaurants. That's a lot less noise! **Thermal performance:** The C value is down to 0.22. That means tons of fuel saved per year. **Price:** Bowater Module Ceilings supplied, fixed and decorated for as little as 29/- per sq. yard.

29/-
per sq. yd.

FREE ACOUSTICAL ADVISORY SERVICE

We are always ready and willing to advise on any projected installation of a Bowater Module Ceiling. We know from experience the shortest cut to solving an acoustical (or thermal) problem at the lowest price. This service is free and without obligation.

Write for further details and the name of your nearest distributor to:

BUILDING BOARDS DIVISION,
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BOWATER HOUSE, KNIGHTSBRIDGE, S.W.1
Telephone KNI 7070



Bowater T/A Panels

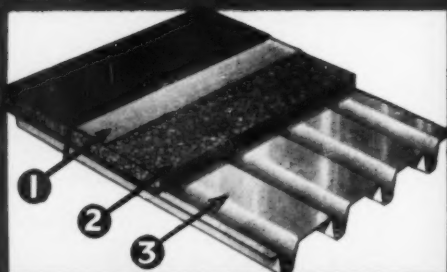
IN THIS
HERTFORDSHIRE
SCHOOL



New Office Block for Rolls Royce Ltd., Aero Engine Division, Hucknall, N.E. Nottingham.

Architects: Rolls Royce Ltd.

ROLLS-ROYCE *Specifies* BITUMETAL



- ① Multi-layer weather proofing
 ② 1" cork insulation
 ③ Corrosion-free aluminium deck

Plus attractive reflective ceiling and no maintenance.

As Rolls Royce is synonymous with the finest in Engineering, so 'BITU-METAL' is regarded by Architects as the supreme achievement in Modern Roofing.



For this new Office Block at Hucknall, Rolls Royce Ltd. specified 'BITU-METAL' because it is:- completely weatherproof... proof against corrosion... dustproof... insulated to conserve heat and reduce fuel costs... speedily erected to cut building costs. Talk about 'BITUMETAL' with your nearest Briggs Area Manager.

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REINFORCED CONCRETE BUILDING STRUCTURES

A
**SUMMERFIELD
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ROOF CLADDING ETC.

Precast Utilities

(LONDON) LTD.



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THE ONE-COAT WAY

NON-CRACKING • CONTINUOUS
WATERPROOF • BITUMINOUS

with

SEMI-MASTIC 'E' (for dry surfaces)

SEMI-MASTIC '197' (for damp surfaces)

NO HEATING • READY FOR USE
EASY TO APPLY • BRUSH OR FLOAT

THE MANUFACTURERS OF:

RITO for joints • **RITOLASTIC** Coatings for Protection • **ROMANITE** for damp walls

WRITE FOR DETAILS TO:

ANDREW MAXWELL DIVISION

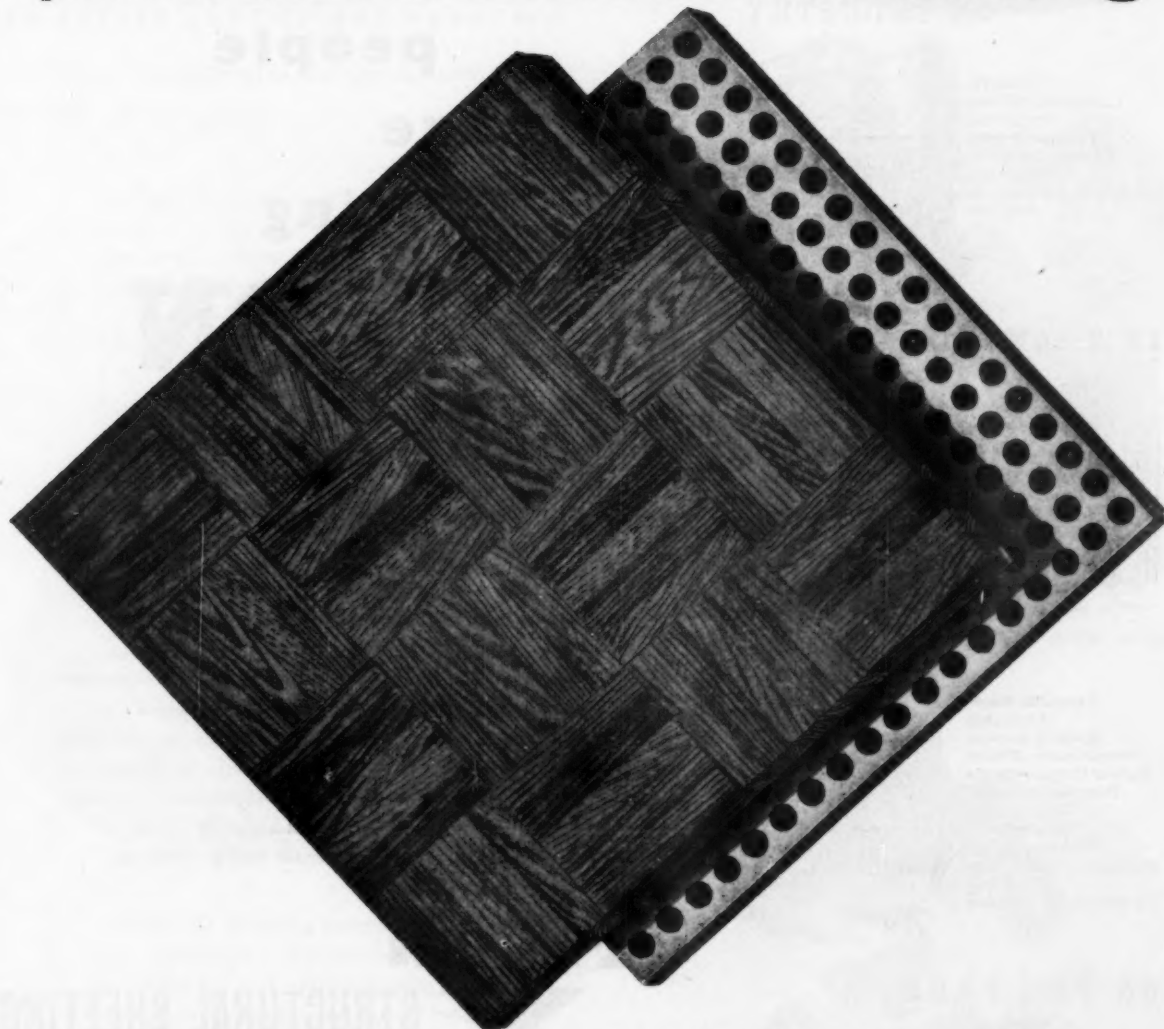
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MAXWELL HOUSE • ST. PAULS SQUARE • LIVERPOOL.3

Alufloor

British Patent No. 746791

**the only wood flooring with
perforated aluminium foil backing**



Alufloor wood flooring has maximum flexibility and stability because of its unique aluminium foil backing. Precision prefabricated and factory sanded to a fine finish, Alufloor needs no pinning or experimental positioning. Architects have found in Alufloor a superior wood flooring at a utility price with these exclusive advantages:—

- ★ Perfect stability over underfloor heating
- ★ A guaranteed $\frac{3}{4}$ " wearing surface
- ★ An unequalled percentage of quarter sawn timber
- ★ Quietest of all wood flooring
- ★ Uses pliable, non-rising, non-slipping adhesive

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Tel: BERMondsey 3535

CALDER (NORTHERN) LTD., Biddick Lane, Washington, Co. Durham

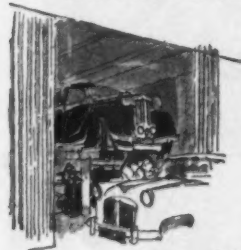
Tel: Washington 2321

IN COMMERCE

Counter Fronts
Movable Screens
Window Displays
Partitions
Lighting Effects
Awnings
Shopping Canopies
Diffused Lighting

IN INDUSTRY

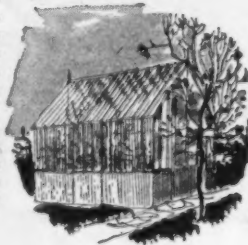
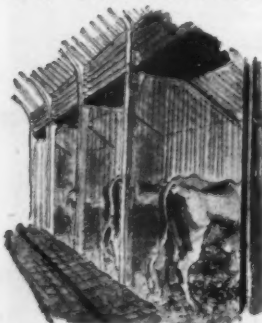
Glazing
Luminous Ceilings
Partitions
Warehouse roofs
Signs and Notices
Dock Roofs
Shower Compartments
Cladding

IN TRANSPORT

Gangways
Rolling Stock
Railway Station roofs
Airports
Washing Sheds
Bus Shelters
Awnings
Maintenance Sheds
Garage roofs and doors

**IN THE HOME
AND GARDEN**

Verandah Roofs
Skylights
Movable Screens
Greenhouses - Fences
Shower Compartments
Porches - Awnings
Wind Breaks
Garage Doors
Pool Enclosures
Sun Lounges - Canopies
Partitions
Garden Sheds - Glazing

**ON THE FARM**

Barn Skylights
Storage Sheds
Greenhouses
Dairy Roofing
Poultry Equipment
Cow Byres
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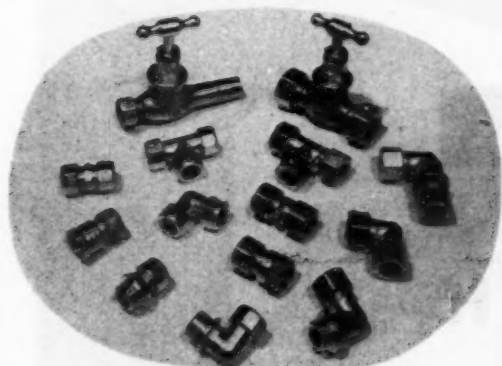
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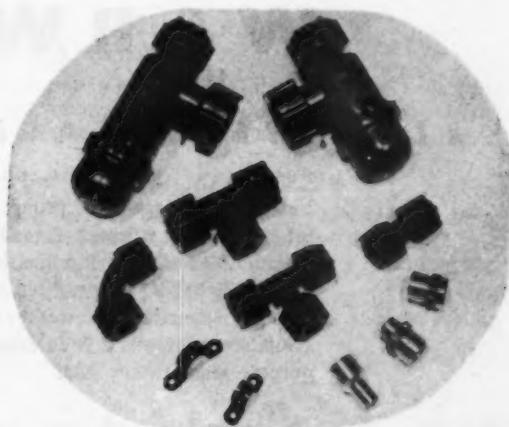


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Yet another large-scale project is added to the long list of building schemes for which the 'WARWICK' Aluminium Sash Window has been chosen. Although the 'WARWICK' has 'assisted lift' and other exclusive features, it remains the lowest priced aluminium window available today—in a wide range of standard sizes or purpose made to any size.

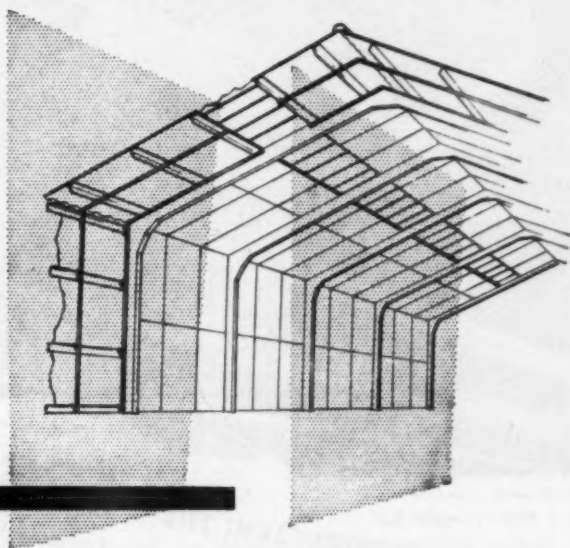
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ITS PRICE IS RIGHT

(as far as any price can be said to be right!) It's the *first, low-cost* system on the market. What's more, it reduces panel waste to a minimum.

IT'S DOWNRIGHT SENSIBLE

You can remove the panels, and re-fit them *without damage* to anything. . . . It keeps the warmth **IN** the building and harmful vapours **OUT** of the roof air-space.

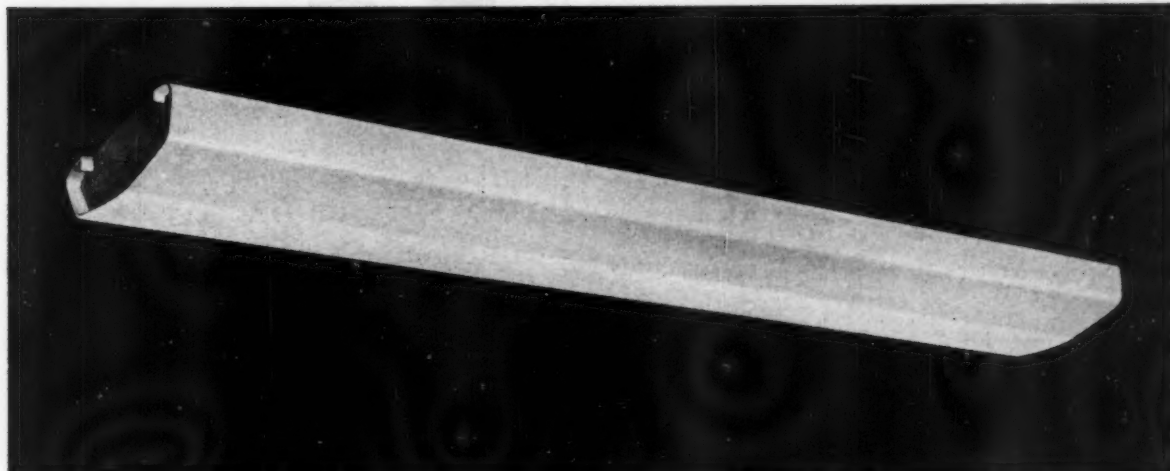
PRICE—One GRECON Pack, containing all the fittings to cover a 50 sq yd area, costs only £10. (Plastic sealing strip and panelling extra.)

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new—elegant—blended lighting

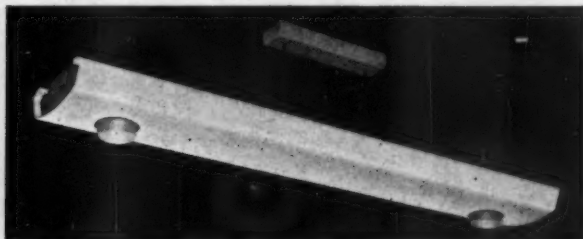


Designed for store, shop and office lighting the new Atlas KE/KI fittings offer fluorescent and a successful blending of tungsten and fluorescent lighting in fittings of extreme elegance. The delightful cross section appearance is a particularly pleasing feature. Wherever circumstances require that both fittings and lighting attain the highest standards of quality, Atlas KE/KI are an ideal choice.

KEQ 2080, KE25 clean, elegant design, with extruded opal 'Diakon' diffuser over rich red end panels. Spring-loaded bi-pin lampholders; quickstart control gear. Takes two 5 ft. 80w. tubes; List Price £16-5-4 + £1-12-1 p. tax.



KIQ 2080: combines fluorescent with two tungsten downlights for added sparkle. Opal 'Perspex' diffuser with black end panels. Houses two 5 ft. 80w. tubes, two 100w. filament lamps and quick-start gear. List Price £23-4-6 + £2-15-8 p. tax



KI 2040: a smaller version of KI 2080, supplied as a complete pack, using two 4 ft. 40w. tubes and employing two Atlas patented starter/ballast lamps in place of conventional lamps and gear. Opal 'Diakon' diffuser with metallic red end panels. Low initial cost makes it ideal for smaller shops and offices. List Price £9-17-4 + £1-14-8 p. tax. Complete with tubes and ballast lamps.

atlas ke and ki fluorescent fittings

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a real magic carpet!



Only a child's description but how well it fits the modern escalator which with its invisible mechanism can carry up to 8,000 persons per hour from one enchanting scene to another, quietly, safely and smoothly!

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Ranch Wall

The versatile outdoor plywood

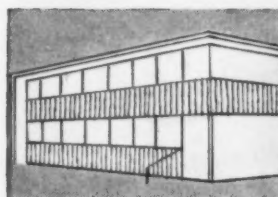
Defies sun, rain and snow!

Designers may now take advantage of plywood's remarkable properties and cost savings for exterior construction.

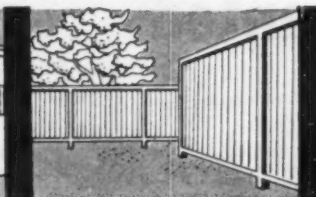
Used extensively in Canada and now being featured in some of the latest building developments in Great Britain, Ranch Wall has the same waterproof, boil-tested glue-line of all Seaboard Douglas fir plywoods, but is vertically grooved at 5-inch centres and factory-treated with a base-coat of Redwood stain. Ranch Wall is not only impervious to weather, it gives to buildings the pleasing design effect of rustic planking, while completely concealing the joints between panels.

If your usual supplier does not stock Ranch Wall, he can order it for you.

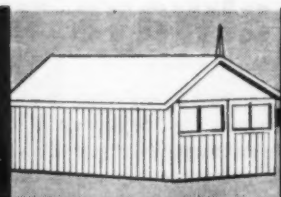
Standard 8 x 4 ft. panels—either 3/8 in. or 9/16 in. thick (lengths over 8 ft. may be ordered).



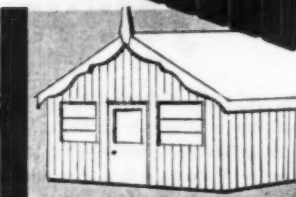
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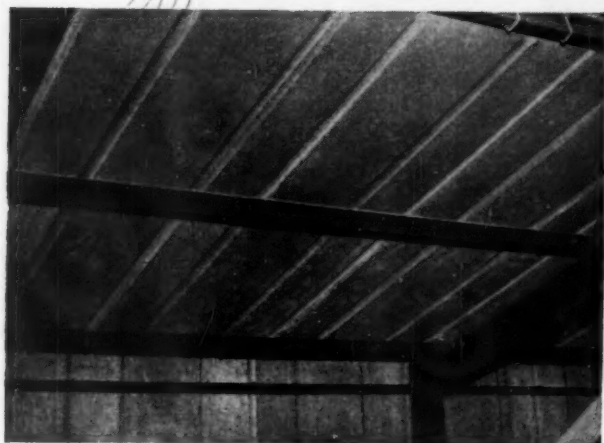
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High resistance to thermal transmission...



Major Six

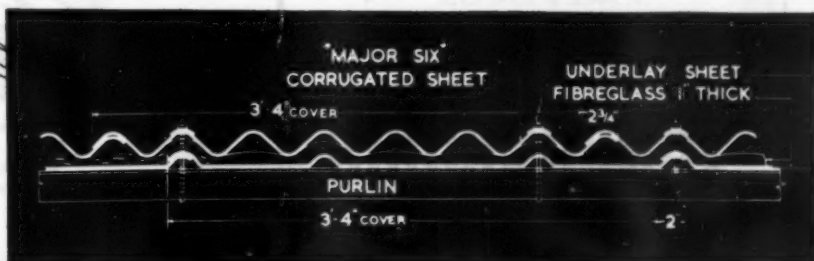
DOUBLE CLADDING INSULATION



Photograph above illustrates interior view of roof

"Major six" DOUBLE cladding insulation provides a high resistance to thermal transmission, contributing to higher equable interior temperature and consequent economical heating. Here is dependable roofing made for quick erection and permanent service.

It's the DOUBLE cladding that does it!—a rigid asbestos-cement underlining sheet laid directly to purlins as a soffit upon which the sheet of insulation is laid before putting the "Major six" sheet in position.



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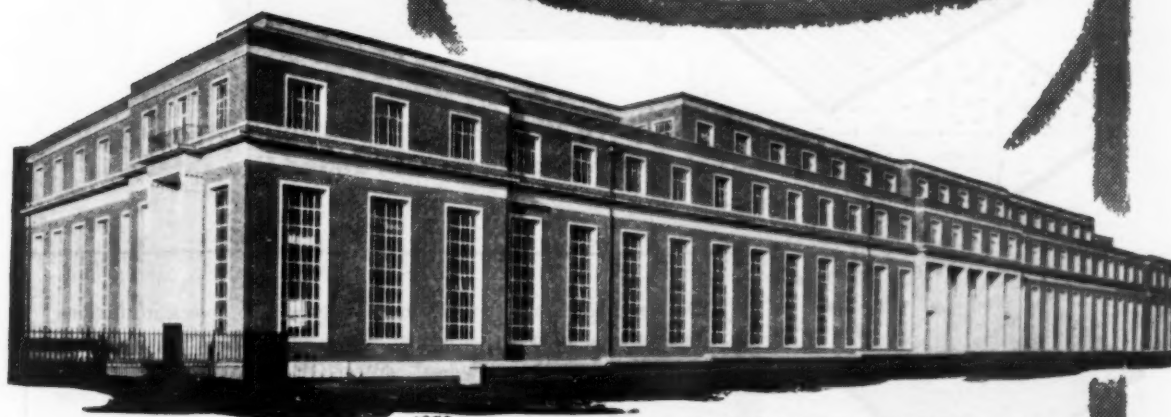
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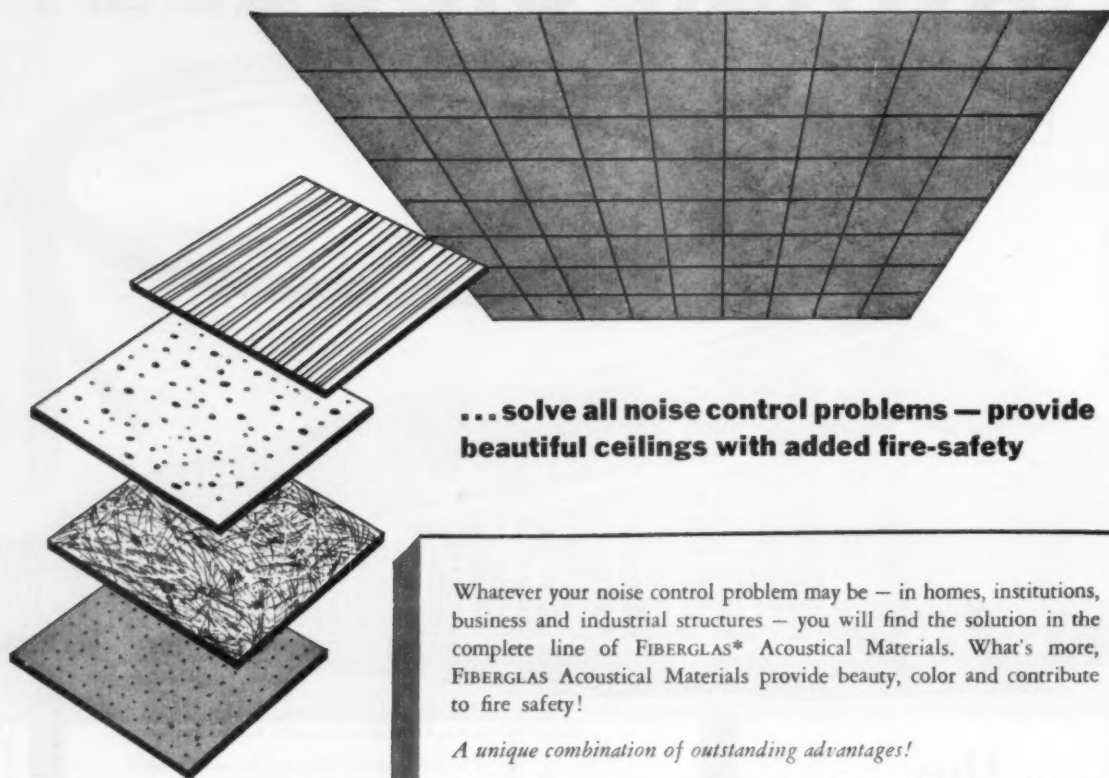
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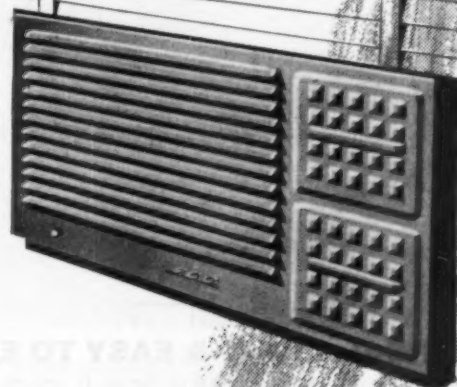
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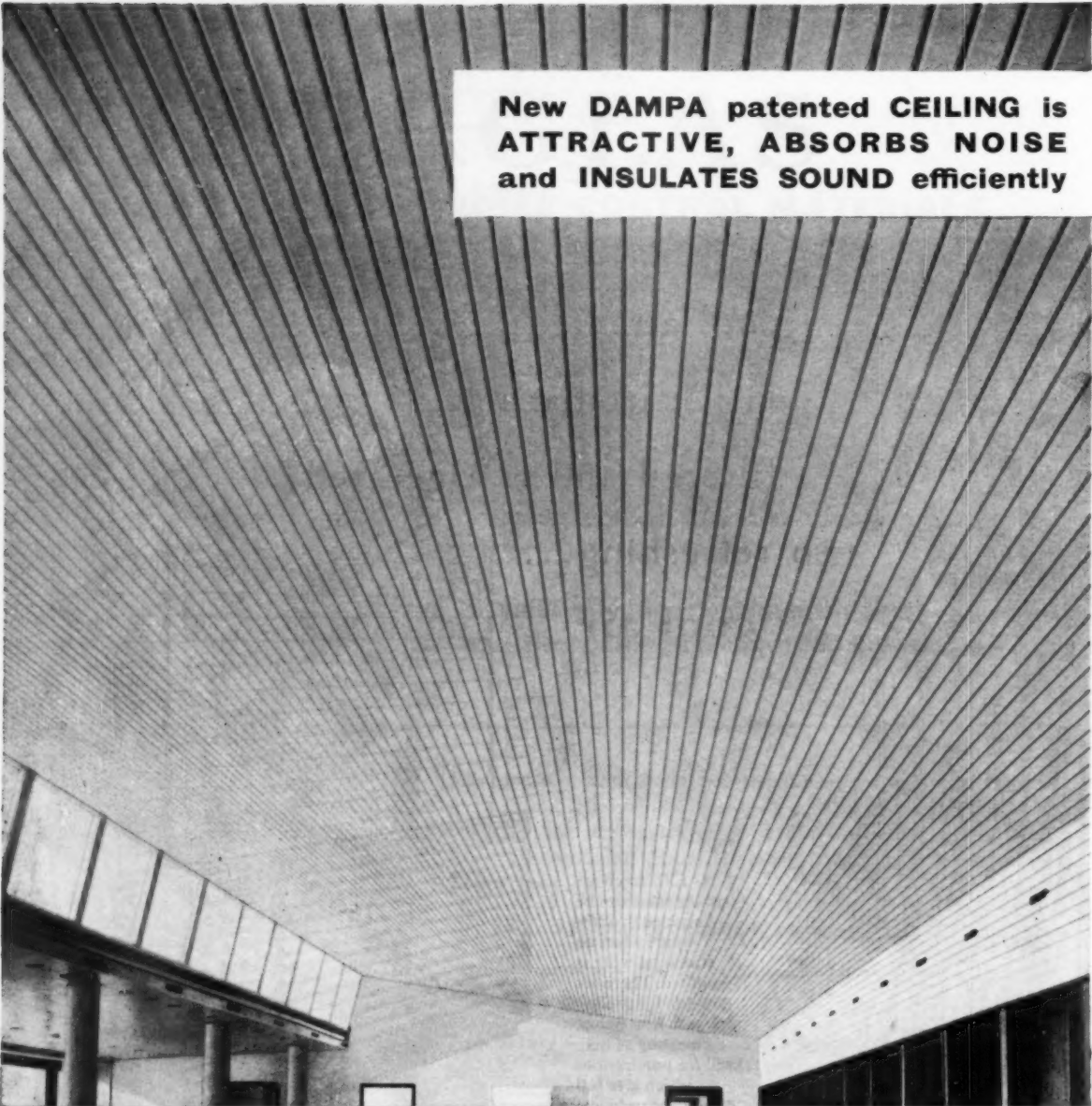


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ECONOMICAL, LIGHT & EASY TO ERECT

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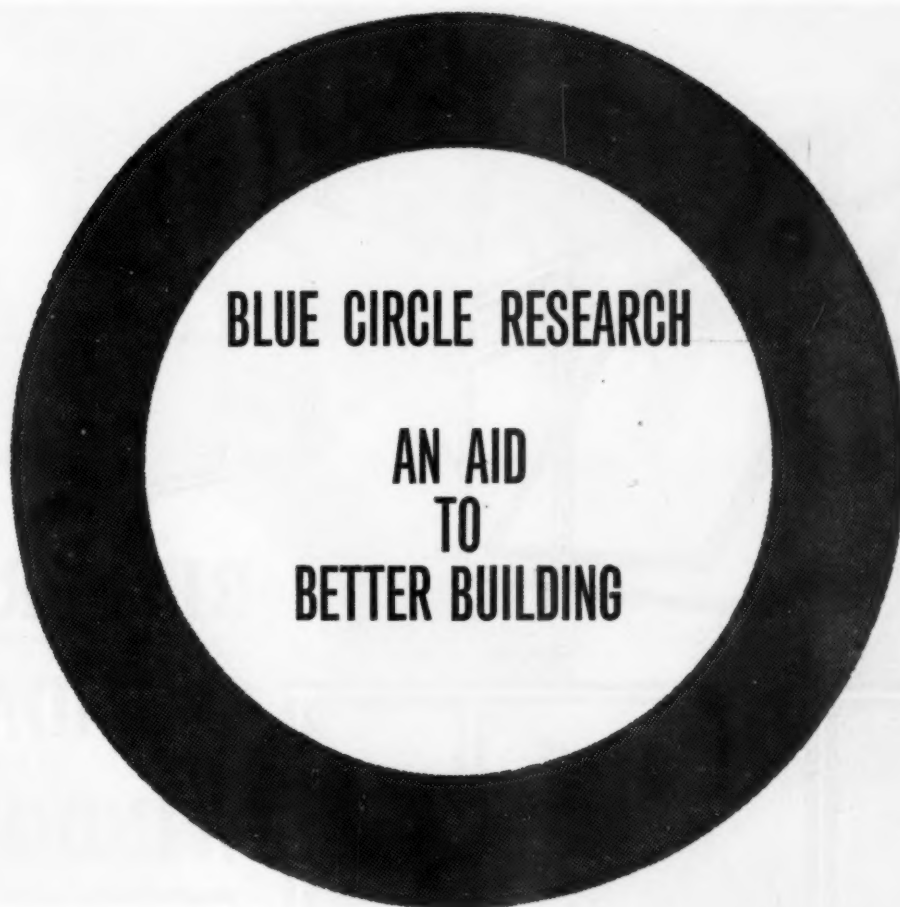
For full information please write to:
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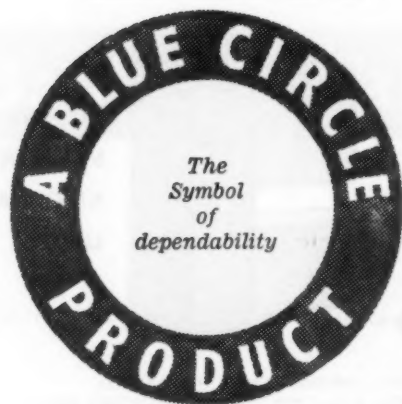
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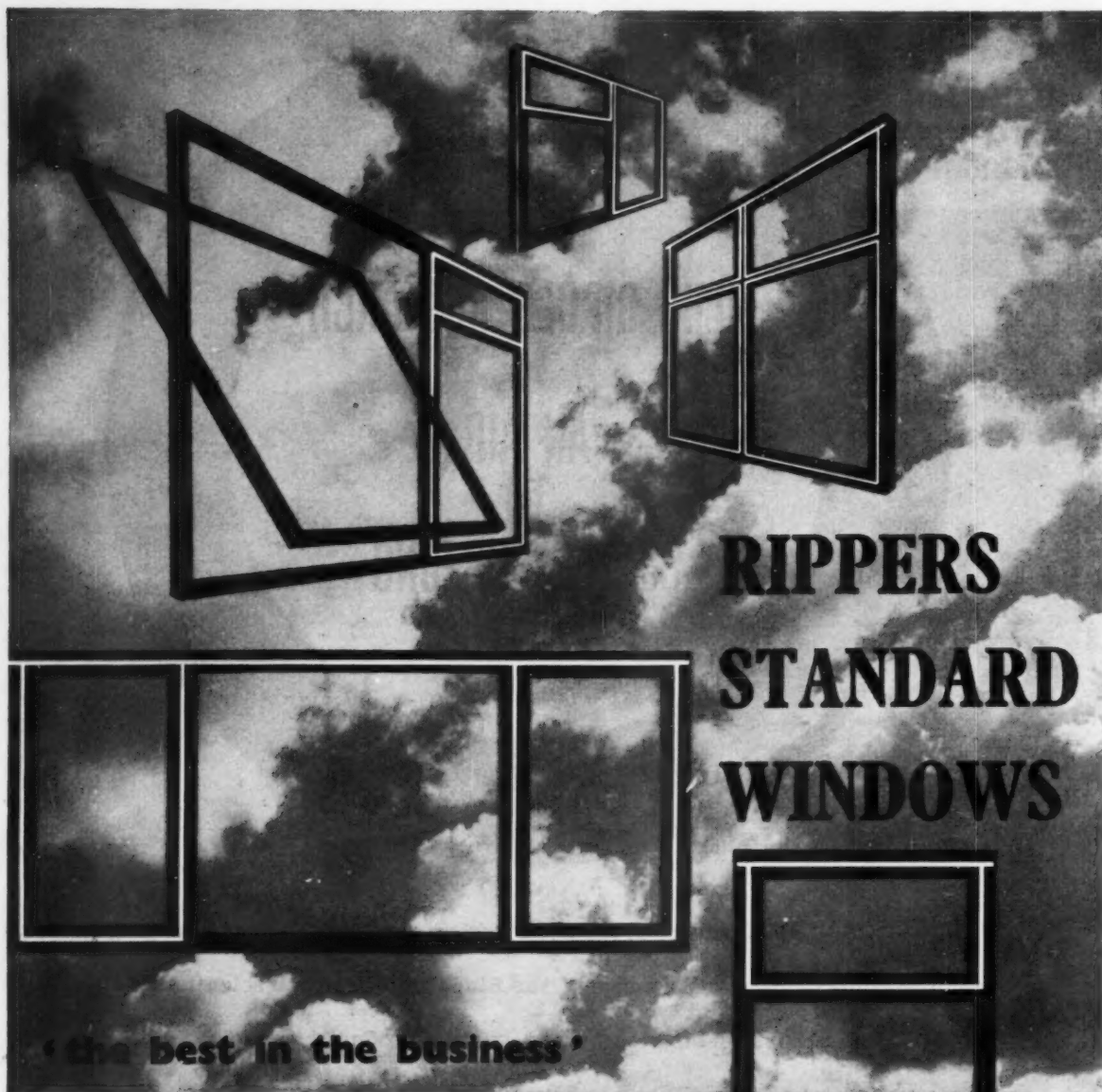


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**'you'll be glad
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WOOD windows'**

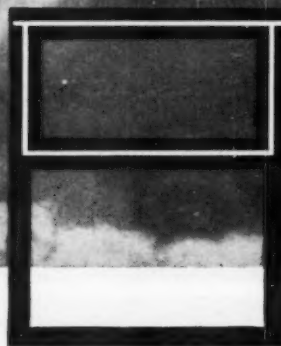
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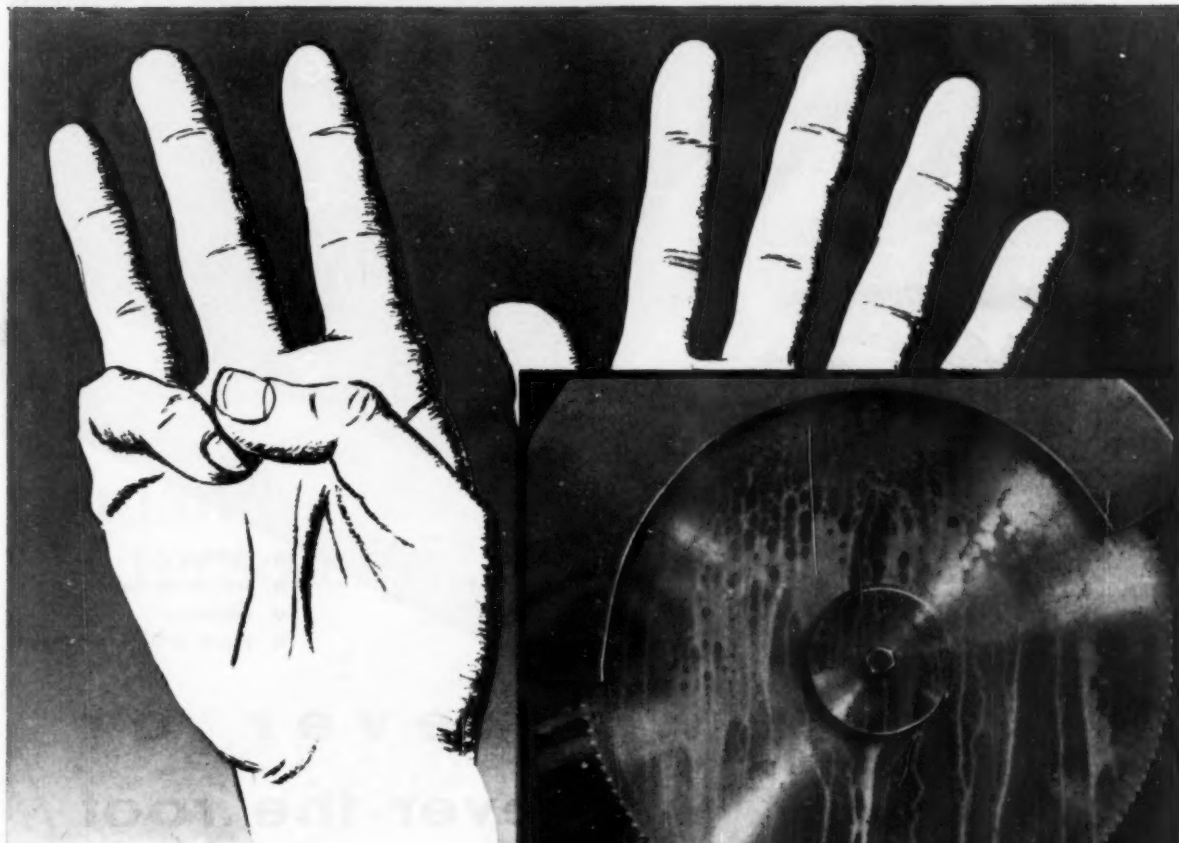
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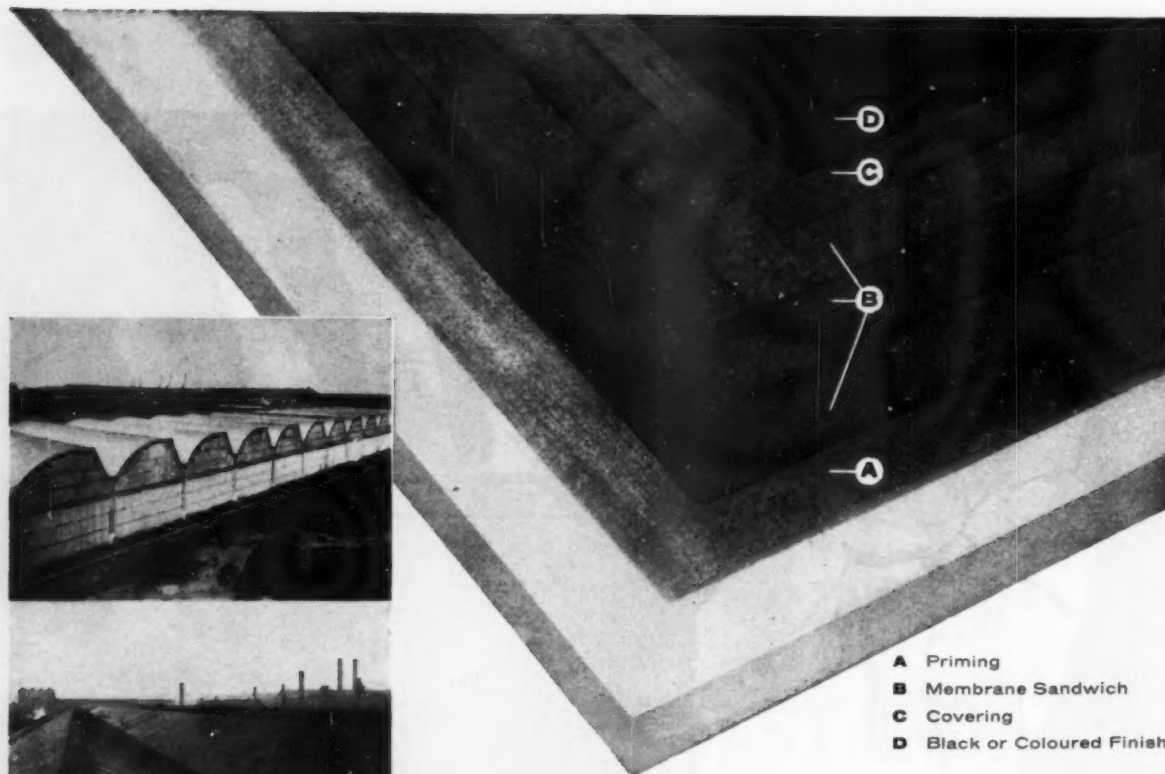
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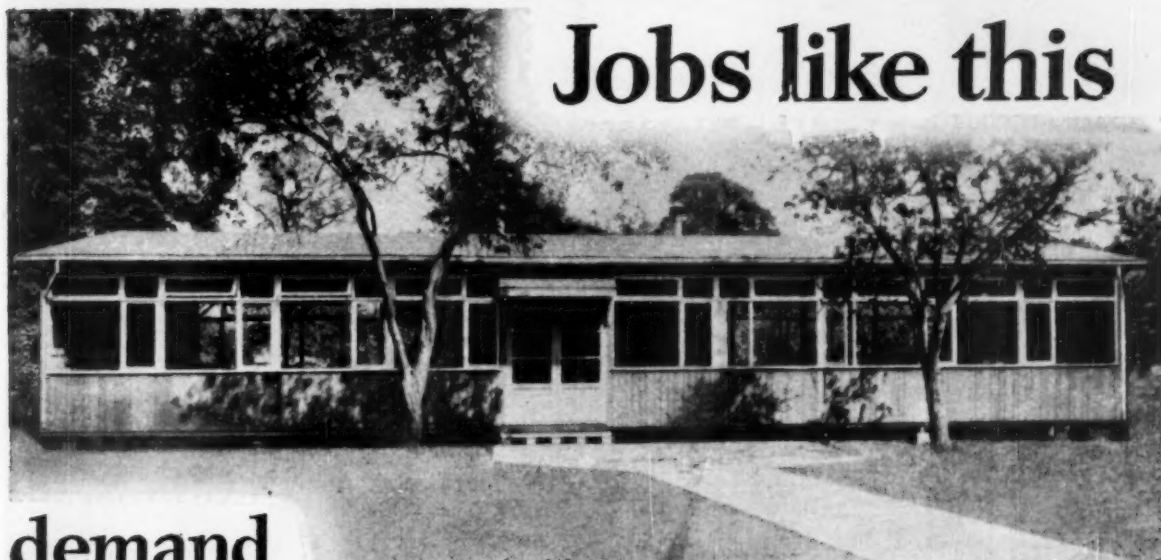
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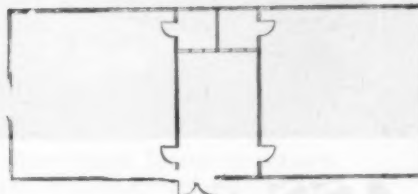


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Photographs by courtesy of the County Architect, Gloucestershire County Council.



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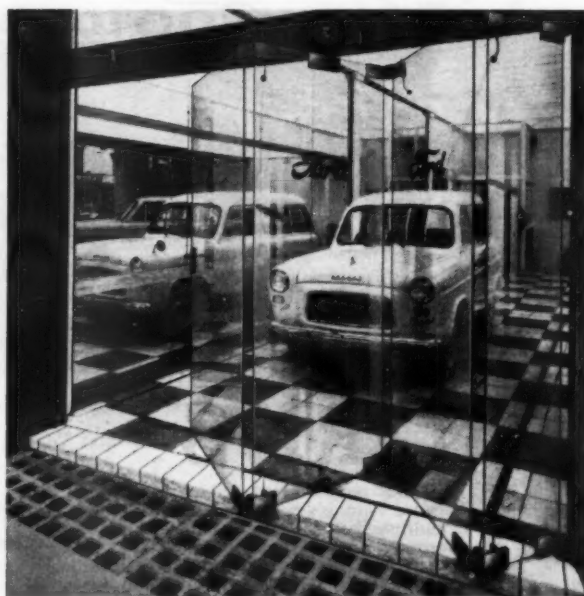
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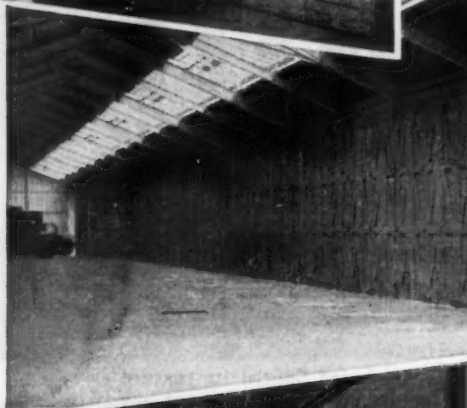
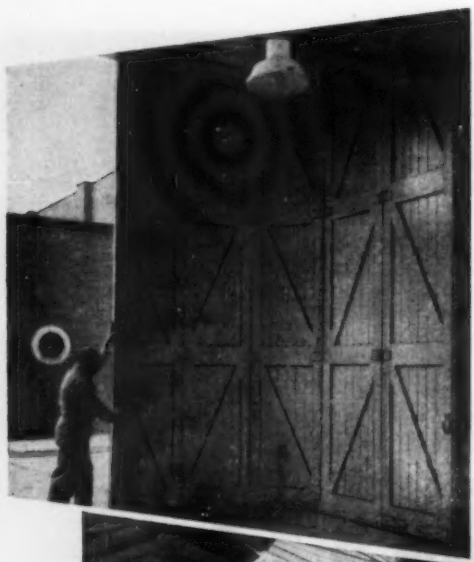
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THE ARCHITECT & BUILDING NEWS

16 September 1959

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ABERCROMBIE, MARK II

LONDON is bursting at the seams. The successful growth of the New Towns and the L.C.C.'s policy on decentralization from Central London has obscured this brutal fact. The south-eastward drift of industry and population, which was the main theme of the Barlow Report, has not stopped but has continued on a large scale since the war.

There is nothing alarming in this provided industry over the rest of the country is not declining as it was before the war, and provided the new build-up is properly planned. Apart from in coal and in cotton, there seems no reason to worry about large-scale unemployment in the north and west at the moment; the cause for concern is lack of regional planning in what for convenience we might call "Greatest London"—the area south-east of Cambridge, Bedford, Oxford and Southampton.

It is a pity that proper machinery has never been set up to co-ordinate the various Development Plans prepared under the 1947 Act. (How many times in the past decade have we begged, cajoled and pleaded in this column for overriding regional authorities?) In some parts of the country this may matter less than in others, but in "Greatest London", with its closely linked activities and wide-spread daily movement of population and goods, it matters a great deal. It has been obvious for some time that a crisis was approaching, if not already upon us. The gradual throttling of London's traffic is a symptom; the impossibility of dealing with London's overspill without New Towns and enlarging existing ones is another.

A. G. Powell, Senior Research Officer for the London Region, gathered together the various threads of this most complicated problem in his address last week to the British Association. He warned us that the Barlow Report and the Abercrombie Plan were now hopelessly out of date, that we were faced with an indefinite continuation of overspill from London and that unless we did something about it, the Green Belt would be in jeopardy and the conurbation would continue to grow even larger in its present unsatisfactory form.

He called for a revised Regional Plan as a new and up-to-date basis for the County Development Plans. This plan must provide positive outlets for the pressure for new building land in the area; a pressure which arose partly from the economic necessities of the export drive, partly from the continued high birth-rate and the high proportion of small families each wanting a separate home, and partly from the general transformation of industrial and commercial methods which contrived to make the London region one of the most popular for expansion.

Mr. Powell said that this expansion was the product of geographical and economic forces too powerful for us to restrain; we could only within limits direct it into more convenient channels.

This direction is a planning job of the first magnitude. The new Government, the electorate are about to choose, will be faced, whatever its political colour, with the inescapable need of doing something about it.

EVENTS AND COMMENTS

SUNNY MANCHESTER

The brilliant weather and the babble of foreign tongues in the hall of my hotel made me feel that I was visiting a jolly continental seaside resort and not the damp, sooty, clog-and-shawl city of the southern imagination. The soot is rapidly disappearing, thanks to the smokeless zone, and only sufficient dust is being maintained in the atmosphere to give body to the magical shafts of sunlight which pierce the windows of Waterhouse's faery-gothick town hall.

Central Manchester is a difficult place to appreciate at a glance, for it has no clearly defined plan. Its buildings, old and new, stand, rather than are grouped, round a number of fine open spaces. The pleasantness of these open spaces is much reduced by the motor-cars tightly wedged into them. There appear to be more cars in central Manchester than in London, and I have no doubt that some Mancunian will say that he can prove it. Local pride is most noticeable, and if I was not actually asked what I thought of their policemen, I was asked what my principal misapprehensions were about the people of the north-west. Their policemen, by the way, are large and fierce-looking, not at all like the small schoolboys now so prevalent in the Metropolitan Police.

As if it was not obvious that Manchester is the largest, most prosperous and most important city in the north-west, its municipal information bureau has produced a booklet of comparative figures in which Glasgow, Liverpool (of course) and Birmingham come off second, third or fourth best, depending on whether they are being considered as a seaport, for banking or for the number of people entering the city each day to work. This kind of propaganda is all very well, but I suspect that for each comparison a different set of premises was taken. Never mind, it looks jolly impressive.

A lot of new buildings are going up, most of them, as a local architect pointed out, are built in car parks. As yet there are hardly enough of them to affect the townscape, and the one or two high ones, such as the Ministry of Works' Crown Building and the curved block near the Midland Hotel, seem isolated and unconnected with the street plan. Granada TV has a pleasant group of buildings in what is, as yet, a pretty derelict quarter. It is these derelict areas which one notices at once. Some, no doubt, are the result of bomb damage, but not all. Manchester is changing its skin and cotton mills and warehouses are lying empty.

Public transport is impressive, and the bus shelter

Scarlsbrick's new crematorium, designed by the Southport Borough Architect, W. Lowry. Main Contractors: Humphreys Ltd., of London. The cost, including the furniture and garden layout, was approximately £72,000



Progress photograph of Arne Jacobson's latest project in the centre of Copenhagen. This is now nearing completion, and will house offices and an hotel

in Piccadilly must be the largest in the world—I wonder it is not mentioned in the booklet. London Road railway station, as you saw in pictures last week, is to be rebuilt and the electrification of the line to Euston has already started. Prodigious works are in hand. I have already commented on one aspect of private transport, but the cars are backed up by a surprising number of deliciously blue-white and beautifully kept and harnessed horses. As usual, the pedestrian comes off worst, and with the exception of a romantic curved alleyway between the town hall extension and Vincent Harris' circular library, there is nowhere the wretched fellow can feel safe. Albert Square would make a wonderful pedestrian precinct, and it would be possible to arrange it.

I thought I saw more tramps in Manchester than I had seen for a long time. Perhaps I missed the notices of an international congress of hobos among those of an Esperanto exhibition, prints by Daumier at the art gallery, and the visit of a, apparently, famous foreign female clown. Life is not dull in Manchester, but I have one regret—the Lancashire high-tea is a thing of the past, or so I was assured. No more ham, salad, fruit cake and strong tea. Oh! Misery.

C.O.I.D RECORD OF DESIGNERS

The Council of Industrial Design maintains a list of designers of all kinds. There are now over 2,000 names on the list, and each designer has been interviewed and his work vetted. Names are now being supplied to inquirers at the rate of 750 a year. In the early days of the Council the rate was about 40 a year. It would be interesting to know how many of the 750 are actually commissioned to design anything, but that is not the point at issue. The Council has, hitherto, provided this service free. Now having backed a winner, it is to charge inquirers three guineas a go. This is the kind of thing that makes people mad. It will at once be argued that three guineas is a very small amount when put beside the design costs of an aero-

plane, or even a cup and saucer, but it nevertheless seems to one to be bad psychology. I feel sure that the record of designers should be just a part of the Co.I.D. service. At this rate they will be charging for the use of Design Index next.

TRAFALGAR SQUARE

Considering how very undistinguished the layout of Trafalgar Square is, it is surprising what a lot of people hang about there. I suppose it is the pigeons. With other centres of interest, like the Elephant and Castle, St. Giles Circus and the tunnelled Hyde Park Corner coming along, Nelson & Co. will have to look into the question of bringing themselves up to date. The authorities, when they are not hanging mis-spelt naval signals round the lion's necks, are usually putting up or taking down hoardings which hide the relief of the death of the Admiral in order to advertise National Savings. It would all be tidier and much more fun if Nelson's column were to be made telescopic, so that its height could be related to the amount of National Savings; actually, if it were the National Debt, it would be more impressive, but perhaps less encouraging. This idea would serve a double purpose; it would add variety to the scene and at Christmastime, when everyone is cashing their savings, it would bring Nelson down so that he could be better seen, and, incidentally, more easily cleaned. Savings could be encouraged by having a post office inside one of the lions so that small boys up from the country could buy a sixpenny stamp and see the column grow a millimetre or so. As all this could probably best be done by electronically controlled hydraulics we can pass to the next item.

HYDRAULICS RESEARCH

Among the many interesting research programmes carried out in 1958 by the D.S.I.R. Hydraulics Research Station was one connected with the nuclear-power station at Trawsfynydd. It is proposed that at times of low demand, energy supplied by the generating station shall be used to pump water from a lower to a higher reservoir. At peak periods, the head of water created will be used to generate additional electricity. My word, Sir! that's ingenious.

MORE GLASS AGE

According to Pilkinton Bros., advertising agents, the earlier results of the deliberations of the Glass Age Development Committee—you may remember "Soho—2,000 A.D.", "Highmarket" and "Skyport One"—aroused world-wide interest. I hope they will not think that I don't adore glass if I say that I found them rather a bore—and no offence to the very distinguished committee, I'm sure!

Anyway, you can't keep a good team down and now they've produced Motopia, an imaginary town near Staines, 17 miles from London. It is planned to house 30,000, and in order to reduce road casualties, pedestrians and traffic are completely separated. This is an excellent idea, but it is not a new one. Professor Richardson was advocating it twenty-five years ago, for Oxford Street. The shop windows and basements, he said, should be at roof level and then we should not have to hold our buildings up on acres of plate-glass. Glass? Who said glass? Motopia, a new glimpse of man's future, will be upon us next week. No prizes are offered for guessing what material has been used to separate the pedestrians from the traffic.

ABNER

THE FUTURE OF A VANBRUGH HOUSE

SOME years ago these pages recorded the temporary use as a primary school, and the consequent saving from decay, of Kingsweston House, which stands within the city of Bristol on its north-western extremity not far from Avonmouth. At the end of the war the condition of the house's interior had been parlous in the extreme. The owners, the Bristol Municipal Charities, had bought it shortly before the war to house, in part, Queen Elizabeth's Hospital, also known in Bristol as the City School. Extra buildings by Sir Aston Webb were started to provide the extra accommodation required for this educational purpose. The scheme was stopped by the war and is not now being pursued. The house was leased to Bristol for use as a primary school to serve the new housing neighbourhood of Lawrence Weston, which runs along the foot of the low hill on which the Vanbrugh mansion stands. A new primary school is now to be built among the new houses. Kingsweston House will, therefore, in some two years, be available again for other use. In the meantime, its rare series of arcaded chimney stacks, which so much impressed Bristolians when they were new that they were closely followed in the design of the charming house known as Bishopsworth Manor, have been found to be dangerous. They have, therefore, been partly dismantled, and their restoration, essential if the unusual and characterful silhouette of the Vanbrugh house is to be preserved for future admiration, presumably depends on what is decided about the long-term future of the actual house.

On this wider matter, the one certain thing is that this house, one of the very small number by Vanbrugh which still exist in a usable condition, must on all counts be preserved and put to some fitting use; as the matter has come under consideration in good time before the departure of the school, and is under active discussion between the Historic Buildings Council and authorities in Bristol, the situation here is not without hope, though by no means an easy problem. Here, however, are some basic facts which need keeping in mind. Vanbrugh buildings are extremely rare; we cannot afford to lose any more or see those still surviving decline into the desolation of Seaton Delaval. The possession within its borders of this house, with some interesting alterations by Robert Mylne, who designed the mock-Gothic folly of Blaise Castle a short way along the same hill ridge, must be a prime source of pride to the city of Bristol; no single one of its many eighteenth-century buildings is of greater importance. In Leeds and Birmingham, respectively, the rather older houses, once country mansions, as was Kingsweston, of Temple Newsam and Aston Hall, have been put to good cultural uses and are among the cherished treasures of their cities. In London we have a close parallel, at the same time both scenic and architectural, in the attractions of Kenwood. The tract of ground made up by the estates of Kingsweston and Blaise, at Bristol, is larger than the Kenwood estate and of far greater scenic attraction; one of its two eighteenth-century mansions, the house at Blaise, is already a department of the Bristol City Museum. Some cultural or educational use would seem an obviously proper destiny for Kingsweston; residential use, in the various circumstances of the house as it is now environed, is unlikely to occur again. What matters most, however, is that Kingsweston must not be allowed to fall into emptiness, disuse, and consequent wreck.

B. L.

On a visit to Rome

ANARISC

"IS VERY BEAUTIFUL"

IF you know Rome you know Via Veneto, it's that sort of street. A shortened, sawn-off Champs Elysées, with wide pavements, grass verges, pavement cafés, expensive flower-shops and the incessant noise of traffic. The world and his mistress parades up and down Via Veneto and, although a cup of coffee there costs two shillings, it is as good a two shillings worth as you will find in Europe, just watching the passers-by.

The girl who drew up a chair at my table was perhaps twenty or twenty-one. She was dark with a small, slightly retroussé nose, firm, red lips, long slender hands. She wore a black skirt and blouse and the heels of her small and delicate shoes were thin as twigs. Although it was nine o'clock at night she wore dark glasses, and when she smiled she showed teeth that were white, even and healthy looking—the sort of teeth that dentists' daughters have. She ordered an ice-cream, and although I affected to read the English paper which I had just bought I was not sorry when she spoke.

"Excuse me, but I see you are English. I wonder if you can help me."

"I hope so," I said.

Well, to cut things short she was soon leaving for England on holiday and wanted to know the best way of travelling to Edinburgh. All visitors to England try to visit Oxford and Edinburgh. I told her as best I could about trains, coaches and air routes—repeating myself a little and making the short sentences into long ones, you know how it is with pretty girls—and she made some notes in a diary which she took from her handbag. Conversation developed, I forget quite how, and in the time it took to order two more ice-creams we had reached the subject of building. I sensed immediately her interest.

"Would it be true to say that most of your building in England since the war has been—how do you call it—social building?" She spoke English fluently, but

with that attractive accent that Italians have—an accent that went perfectly with the dark glasses and the dentist's daughter's teeth.

"Yes. Probably so," I said. "For the first eight years or so after the war we concentrated on building houses, flats and schools. We had to put first things first. We built schools and houses for the same reason that we form queues for buses in England, because it seemed fair to do so. Incidentally, and I hope I am not offending you, but in Italy you don't queue for buses and you don't seem to be building many schools. Is it fair to assume these two things are related?"

She paused and bit her lower lip. "Fairly fair," she said, "but although we have not built many schools since the war we have built many apartments."

"But they are for the rich, you see them springing up everywhere in Rome—"

"And for the poor. You have not heard of the Fanfani Plan?"

"Yes, but—"

"But listen, and I will speak to you of the Fanfani Plan." She was taking control of the conversation.

"The Fanfani Plan was originally a seven-year project which we began after the war, to provide work and to build homes. It was an economy plan, the best we could get for the little we could afford. The State itself was poor, but it agreed to pay one-third of the cost. Most of the rest of the money came from six million workers under sixty who were taxed about decimal six per cent of one month's pay, and from their employers who paid double this sum." She spoke with assurance and I could not doubt that she knew her facts.

"We began the Fanfani Plan in 1949," she continued. "This was a time when work was short, not only for workers in the industry but for architects, too. So we decided to use private architects to design our flats and we held competitions to choose our architects. We hold on the average four or five competitions a year for this purpose and we not only employ the winners of these competitions but we give work also to the architects whom we call satisfactory losers. The Fanfani Plan has meant much to aspiring architects—and still does. INA-Casa—this is the name of the organization which administers the Fanfani Plan—encourages variety by giving architects the lightest possible framework around which to build, and on the larger schemes awarding work to groups of architects working either together as a group, or independently."

"And the cost of these flats?"

"Is about thirty-five thousand lire a square metre, the cost. *Dunque* . . . that would be"—and she jabbed her ice cream spoon gently at the air as she did the sum—"something like two pounds for one of your square feet. Would that be cheap in England?"

"Yes, especially if all the floors are of marble, as I am certain they are in your flats."

"Is cheap also in Italy, thirty-five thousand lire a metro quadrato. Is about a third of the cost of one of these non-luxury flats you get in Rome."

"Tell me," I said, savouring the nut-flavoured ice-cream as it melted in my mouth, "how do you choose your contractors under the Fanfani Plan? We produce



a small encyclopedia in England called a Bill of Quantities, and the contractors tender on that. Do you do the same?"

She smiled. "I have heard of your Bill of Quantities," she said. "There has been talk of using that system in Italy, but nothing comes of it. You have to be organized to adopt big new ideas in the building industry, and in Italy we don't like being organized. We are individuals. But this is an interesting question, the tendering. You see INA-Casa spends much public money, so we must be very careful to be fair. In Italy we have still a strong, what do you say, streak of Al Capone. We like the racket, the smuggled cigarette, the organized begging. So INA-Casa has been clever, we adopt the compensated average method of tendering. I will explain.

"We send each contractor drawings, specification, conditions of contract and a list of prices which shows rates of labour and material at the time of contract, rates for work below ground level (which is always remeasured) and a price per metre cube for the superstructure. Now the prices for work below ground and for metre cube are usually a little high and the contractor must, when he tenders, state the percentage reduction on these figures which he is prepared to offer. Before the tenders are opened the panel of judges—usually three—fix a maximum and minimum percentage reduction. These are figures which they think fair for the particular contract, and when they open the tenders they first of all exclude any offers above the maximum or below the minimum. Then they average the remaining offers and find the average of this figure and the maximum reduction allowed. The contractor nearest to this new figure is awarded the contract and if two contractors are equal the names go—how do you say—into the hat. Is a little complicated, no?"

"Is a little complicated," I replied. "And increases in rates of labour and material?"

"Yes, we allow this. You remember I say the contract papers includes prices of labour and materials. We allow increases and decreases in excess of 10 per cent of these figures. So if cement goes up eight per cent the contractor must accept the increase, if it goes up 12 per cent he can claim two per cent."

"So the contractor must accept a risk of ten per cent?"

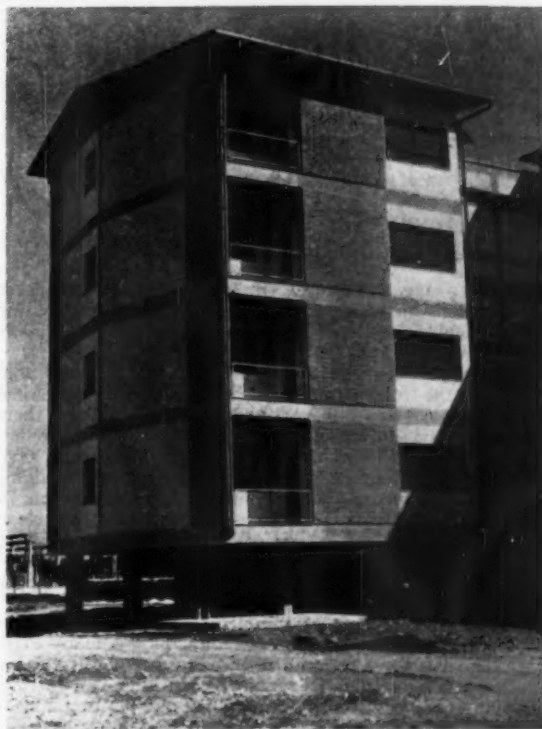
"Twenty per cent, it is not? Ten per cent each way. But then we like risks in Italy and twenty per cent is about what we like to gamble. You see that boy riding the motor-scooter?"—she pointed out a youth in a blue and white tee shirt jinking through a traffic jam—"he rides about eighty per cent safe. This is usual on the motor-scooter."

"To return to INA-Casa," I said. "When the flats are completed, how are they disposed of?"

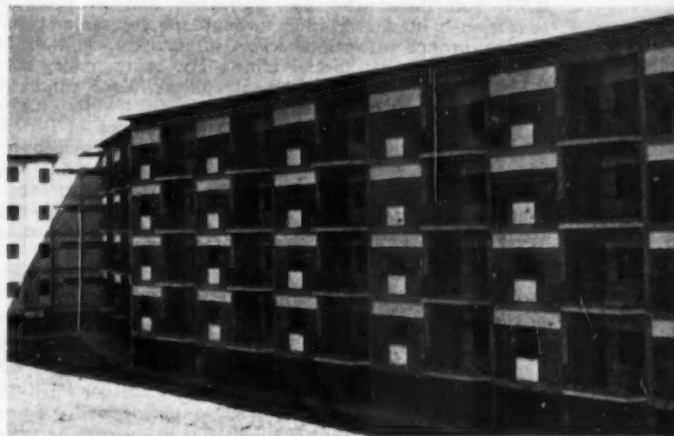
"We post notices in the district soon after the commencement of building asking for applications for tenancy, and a local committee, formed of the INA-Casa Administration, selects the most deserving. We allow these people to buy—and we prefer this—or to rent. They must choose. If they rent, INA-Casa is responsible for maintenance. Is about fifty-fifty the proportion that buy and rent."

"You said you began this plan about ten years ago. When will it finish?"

"This is not sure. We originally planned for seven years, now we are half way through the second seven-year stage and we have built so far about 400,000 homes. We need plenty more and soon we must decide if INA-Casa is to continue. For me I hope so,"



The pictures on this page and facing are of INA-Casa blocks of flats in Rome. The flats are part of a scheme known as the Fanfani Plan, which is administered by INA-Casa, a building organization which chooses its architects by competition



and she laughed slyly "is my bread and butter, this work. And now you please excuse me, I must go."

"Not before I thank you for a most interesting conversation," I said, rising from the table.

"Is nothing. Please excuse my English, this is not good. Thank you for my ice-cream."

She smiled again, excused herself and hurried away down Via Veneto. A middle-aged Italian, whom I had not previously noticed, but who had been sitting at the next table, moved across to me, his blue lightweight jacket still slung across his shoulders, and whispered confidentially in my ear.

"Is very beautiful, your friend, Signore. Is very beautiful."

NEWS

B.S.I.'s Report for 1958-59 : Progress in Standards

The growing demand of industry for new standards specifications on which to base production and purchasing requirements is reflected in the annual report for 1958-59 of the British Standards Institution.

The report—for the year ended March 31—says that although the total number of new standards published is slightly less than in the previous 12 months, "there has been a sharp increase in new projects to be undertaken in the technical divisions: in the engineering division 144, as compared with 92 last year; in the building division 34, compared with 17; in the chemical division 48, compared with 16". The range of these new projects is ever widening; products for which standards are now in course of preparation—at the request of industry—include, for example, seat belts for motorists, dividend warrants, poultry-feeding appliances and yacht rigging.

Special features of B.S.I.'s technical activities referred to in the report are the co-ordination of the many existing standards for steel and other basic materials, progress on work connected with computers, continuing efforts to develop standards for smoke control and the preparation of standards on flammability of fabrics.

The growing support given by trade and industry to B.S.I.'s work is apparent from a further big rise in the number of new subscribing members; the total at March 31 was 10,605—an increase of 6 per cent over the previous year's figure.

The report refers to a growing awareness of the need to use standards *effectively* in production. "Efforts are continuing to ensure as close contact as possible between B.S.I. and those who use standards, and to promote education in standardization through conferences and discussion groups at various levels in industry, as well as among students." Special efforts are being made, says the report, to see that technical colleges place emphasis in their courses on standards techniques.

There was a further increase in the number of British Standards under which certification mark schemes operate; the total stood at 145 on March 31. P.V.C.- and polythene-insulated cables, fluorescent lamps, copper tubes, school furniture and gymnasium equipment were among the products for which certification schemes were being considered.

The office of the President of the Executive Board of UNESCO in the new Paris building, the furnishings of which were given in the name of the people of the United Kingdom. The panelling in the wall of the President's office is in tan coloured leather, and was a gift from the Leather Institute. The other two walls are covered in tongue and grooved boarding painted white. The ceiling is ash veneer panelled

Holborn Parking Meter Scheme : Public Inquiry

A public inquiry into an application by Holborn Metropolitan Borough Council for a meter-controlled parking zone in the north-west corner of the borough is to be held by Mr. Alex Samuels, chairman of the London and Home Counties Traffic Advisory Committee and two other committee members at Holborn Town Hall, beginning on September 30, at 10.30 a.m.

The effect of the proposals would be to set up a meter-controlled parking zone in the north-west corner of Holborn, bounded on the north and west by the borough boundary, with St. Pancras and St. Marylebone, on the south by New Oxford Street, and on the east by Southampton Row.

Kent Appointment

Arthus Donnan, A.R.I.B.A., until recently an L.C.C. senior architect, has been appointed Assistant County Architect by the Kent County Council.

L.C.C. Progress in the Expanding Towns

The L.C.C. is co-operating in the expansion of a dozen country towns in order to provide homes and employment for some 28,500 families from London over the next 15 years.

Expansion schemes are in operation for Bletchley and Aylesbury, in Buckinghamshire; Swindon, in Wiltshire; Haverhill, Thetford and Bury St. Edmunds, in East Anglia; Huntingdon; Letchworth, in Hertfordshire; and Luton, in Bedfordshire. Two more schemes—at Ashford, in Kent, and Basingstoke, in Hampshire—have recently been agreed. These, with the L.C.C.'s own scheme in Edenbridge, will provide homes and jobs for about 28,500 families. The two schemes in the Luton area will not need additional industry. Nor will Letchworth for the time being.

So far, 1,599 families have moved. Another 1,097 will move shortly and employment for them is already arranged. There are attractive opportunities for industrial development on 10 industrial estates covering some 360 acres in all. Fifteen firms from London or Greater London are established in four of the towns; three other firms have factories under construction; 35 more have agreed in principle to move. More still have shown interest and are discussing possibilities with the Council's Industrial Information Centre at County Hall.

Progress with town development schemes is shown in the table on the facing page.



Town and type of scheme	Extent of expansion scheme		Notes on progress with town development schemes
	Dwellings	Industrial sites acreage	
Ashford ('Nomination')	4,250	Not yet decided	Building expected to commence in August 1960.
Aylesbury ('Nomination')	3,000	19	7 London firms have agreed to move.
Basingstoke ('Nomination')	3,500	80	3 engineering firms interested in moving. New sewage system necessary before new housing can be occupied.
Bletchley ('Nomination')	1,400	60	274 families have already moved from the County of London, and 61 more heads of families have been placed in employment. 8 firms from London are in production; 7 more have agreed to move there in recent months.
Bury St. Edmunds ('Nomination')	1,500	13	A London firm requiring 80 houses is ready to transfer; 80 houses and a factory can be constructed soon.
Edenbridge (L.C.C. development under Housing Acts)	819	10	Negotiations with 5 firms have reached an advanced stage. 312 houses are under construction.
Haverhill ('Agency')	1,400	35	11 families have already moved from the County of London, and 27 more heads of families have been placed in employment. The factory of Mount Furniture Ltd. already in production; Athletic Equipment Ltd.'s factory to be completed in October; and a further factory under construction. Haverhill U.D.C. are constructing 4 unit factories, some of which are destined for 3 other London firms which have agreed to move. 2 other firms from London are already well established in Haverhill. 114 houses are completed and 50 more are to be started later this year.
Huntingdon ('Agency')	1,000	37	A London firm has decided to move. Work on industrial and residential sites will start as soon as the acquisition of common lands has been completed. It is hoped that the first houses will be ready in late 1960.
Letchworth (Composite scheme)	1,750	20	A London firm has already transferred into existing premises. Vacancies for employment exist in local industries. About 250 houses under construction by Letchworth U.D.C. for occupation by London families.
Luton—Borough Council ('Nomination')	1,000	—	First of 318 houses under construction are due for completion. } Sufficient local employment available. 538 workers already placed through the Industrial Selection Scheme. 490 houses under construction; 17 already completed.
—Rural District .. ('Agency')	1,400	—	
Swindon ('Nomination')	6,000	50	1,300 families have moved from the County of London, and 463 more heads of families have been placed in employment. 3 firms from London are well established; two more have recently decided to move there.
Thetford ('Agency')	1,500	40	9 families have moved from the County of London, and the heads of 7 more families have been placed in employment. 2 engineering factories (owned by G. Williams Engineering Co. Ltd. and J. A. Clark & Co.) are completed and in production. 6 more firms agreed to move, and others are interested in the possibility of doing so. Unit factories are being built by Thetford B.C. for smaller firms. 58 houses are already completed and 16 more are due for completion in October 1959. Another 40 are to be commenced soon.

L.C.C. Town Expansion Progress

British Construction Work Overseas, 1958-59

In the twelve months ended March, 1959, British contractors carried out construction work overseas to the value of more than £120 million. This was some £6 million more than in the previous twelve months and the highest figure since the M.o.W. survey began in 1954-55.

More than 60 firms were active in over 65 different countries.

New contracts obtained during the year amounted to just under £115 million—some £4 million less than in the preceding year, but £13 million more than in 1956-57. The value of work outstanding in March was nearly £124 million, £2 million more than a year earlier. The slight

Continued overleaf

NEWS continued

fall in the value of new contracts obtained is probably the result of fewer large contracts being placed during the period; a similar fall in 1956-57 was more than compensated for in the following year and the value of outstanding orders is higher than ever before.

New Work Overseas

During the year British firms began work in a number of fresh countries, notably in the Fiji Islands, Gambia, West Germany, Holland, Japan and South-West Africa, while large orders were obtained but not yet started in Borneo, Guernsey, Mauritius, and in Singapore, where work has not recently been in progress.

There was an increase of over £8½ million in new contracts obtained in Commonwealth countries throughout Africa and the value of outstanding orders at the end of March, 1959, was nearly £13 million up on the previous year. Particularly noticeable were the rises in new orders in the Central African Federation (nearly £2 million), Nigeria (over £6 million) and the Union of South Africa (over £2 million). During the year just under £40 million of work was carried out in the African countries of the Commonwealth, the largest amount in one country being £9 million in Ghana. British firms were also working in French and Portuguese colonies in Africa, and this continent is clearly a very promising field for contractors.

Elsewhere in the Commonwealth the only large rises in new orders were in Fiji and in Pakistan (some £5 million in all). The amount of work done was greater than in the previous year, notably in Ceylon, India, Malta and Pakistan; but the lack of new orders led to a general drop in the value of orders outstanding at the end of the year. It is hoped that this downward trend will soon be reversed.

During the year British contractors obtained new orders worth nearly £7½ million more than in 1957-58 in Brazil,

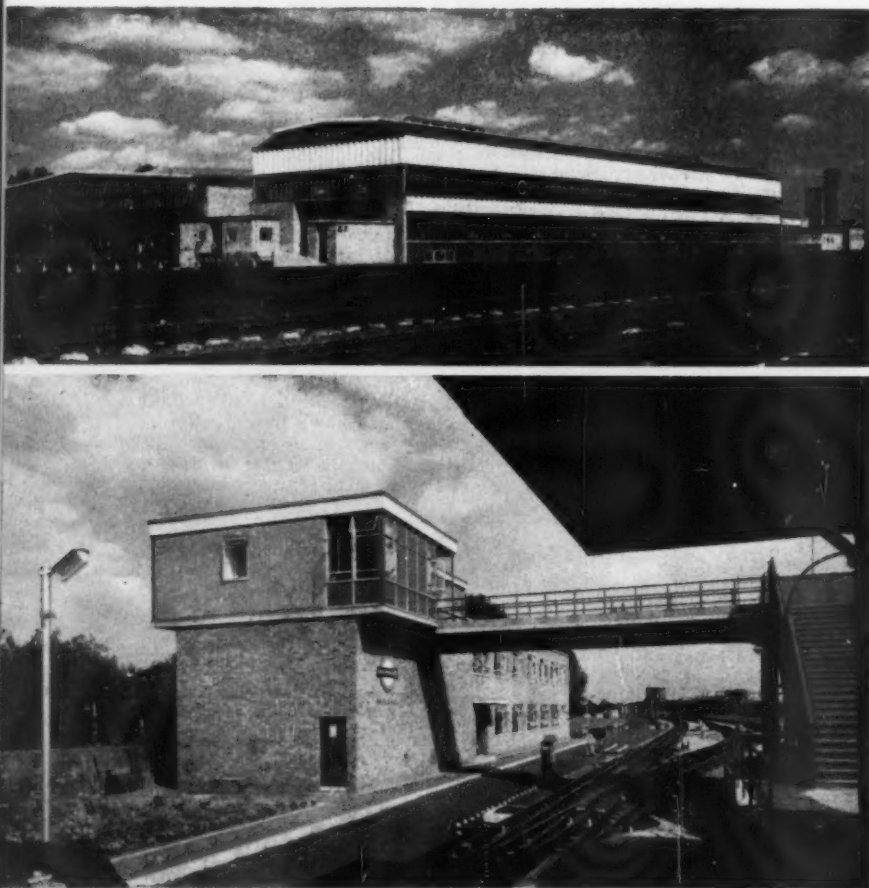
and over £6 million more in Iran. These, and the increase in orders in Africa, largely offset the lower level of orders in the rest of the world. In the dollar area, which is accounted for almost entirely by Canada, the position remained fairly steady with a slight drop in orders. Although some improvement had been looked for after the £9 million drop in new orders for this area in the previous year, the value of work done continued to rise slowly and better orders are to be hoped for in 1959-60. Meanwhile the orders in hand represent about eight months' work.

Contracts Awarded

The variety of jobs which British contractors obtain overseas and the wide area of the world which they cover can best be demonstrated by mention of a few of the more outstanding contracts.

John Laing are currently constructing the 2½ million dollar Queensborough Bridge over the Fraser River, near Vancouver; while Cubitt Wells have been erecting a large office block for the New Zealand Meat Producers and Dairy Boards in Wellington.

Keir & Cawder Ltd. have recently obtained a contract for oil-drilling in Iraq; while constructors John Brown Ltd. are concerned in two joint ventures to construct pipelines (for oil in Borneo and natural gas in Iran) which together are worth some £11 million. The Taylor Woodrow Group are engaged on an airport in Fiji, a sea pipeline in Ghana, a port project in Nigeria and various building contracts in Africa, Australia and Canada. In Natal, Rush & Tompkins Ltd. are building 14½ miles of an important road, involving culverts, earthworks, etc. Richard Costain Ltd. have been concerned in the extension of a power station, the rebuilding of bridges, road building and the construction of two breakwaters (an £8 million contract) in Nigeria, road and bridge building in the Cameroons, the erection of offices in Southern Rhodesia, and harbour construction for oil tankers in the Persian Gulf (two contracts worth together some £8½ million). Humphreys & Glasgow Ltd. have recently installed New Zealand's first oil gas plant.



New £1,000,000 Upminster District Line Depot is now completed. Pictures show: above, the control tower with sub-stations beyond in the background. Left: the Upminster Station signal box and accommodation for yard-master, permanent-way staff, etc. etc., Left, top: the main depot building with lifting shop in the foreground

COST RESEARCH LIAISON COMMITTEE

VALUE FOR MONEY IN BUILDING

The second series of cost conferences organized by the R.I.B.A., under the sponsorship of the R.I.B.A./R.I.C.S. Cost Research Liaison Committee, was held at Bristol in July. Architects and quantity surveyors attended in large numbers, together with representatives of building contractors, clients and a consulting engineer. This article deals with the first full day of the conference, which was devoted to the control of building costs at the design stage. J. Nisbet, chief quantity surveyor, War Office, spoke on techniques and methods of cost control, Cyril Swett, chairman of the R.I.C.S. Cost Research Panel, on cost analysis and its application to cost planning and cost control techniques. G. J. J. Hunt, of the Building Advisory Service, opened a discussion on the alternative techniques of cost planning, supported by P. W. Grafton (G. D. Walford and Partners), and C. M. Nott, chief surveyor, county architect's department, Hertfordshire County Council, authors of papers setting out the detailed application of the techniques. The conference was chaired by R. Baden Hellard, chairman of the Liaison committee.

AFTER lengthy discussion, both in groups and in open forum, the conclusion was reached that whilst there was no essential difference in approach between the methods of cost planning described, the working out of the techniques should vary to suit the type of job and the kind of office carrying it out. What was particularly needed was a simple explanation of a method which the architect working in a small or medium-sized office could put into practice.

There was no dissent from the view that cost planning could be of great benefit to the client in giving him an economic job. It was suggested that there was a need for something like an ABC for the client explaining what was involved when he started to build. From the client's point of view there was insistence that the client must know at the outset what expenditure he was being committed to, and that the client was entitled to know this cost without paying extra for cost planning. A more precise approximate estimate at the sketch-plan stage was, therefore, called for.

Programming and Contract Planning

On the broader aspects of management, J. M. Austin-Smith gave a stimulating talk on the architect's responsibility for programming and contract planning. This showed the close link between time planning in the architect's office and cost planning. Attention was drawn to the contribution which management techniques could make towards giving the client confidence in the architect. During the discussion it was suggested that the R.I.B.A. should have a group of advisors, on the lines of the Building Advisory Service, to whom architects could turn for advice on problems of management and office organization. The possibility of widening the scope of the Building Advisory Service itself to cover the building industry as a whole was also suggested. There was general agreement that the procedures outlined by Mr. Austin-Smith were likely to lead to an increase in office overheads, but this in turn should lead to less time and lower costs in the actual design process. It was nevertheless considered that the building industry's overheads were too low at present when compared with those of the manufacturing industry, where millions were spent annually on research and development.

In the education of the architect, it was thought that students should be given a background knowledge of the problems of management in order to give them a better understanding of the balance between the aesthetic and the practical that was needed to make the "complete architect". It was considered that the main study of management should be kept to the post-graduate level.

Ivan Tomlin, of Howard Farrow Ltd., spoke of the effect of the design process on tenders and building opera-

tions. During the discussion of the relationship between the architect and the building contractor, the suggestion was made that at a certain stage in the architect's career he should enter a contractor's organization for a substantial period (five years) to carry out central planning, the co-ordination of architects' and engineers' drawings, method study and job organization. This, it was suggested, would be good training for architects and would also help the builder to understand the aesthetic objectives of the architect. In reverse, people with building management experience might be invited to join a firm of architects for a period. Such methods would help to break down the barrier between the two sides of the industry. Most of the architects present were doubtful of the merits of this suggestion, particularly for a period as long as five years.

The need for the early practical training of architects was, however, recognized and it was thought that practising architects should shoulder a much greater responsibility for training students and younger members of the profession. This was a problem common to all the professions and it was suggested that the institutes concerned needed a policy on it.

An invaluable lesson in the communication of ideas, whether by means of the written or the spoken word, was given by A. C. Leyton, Barrister-at-Law, Organizer of Liberal Studies, Northampton College of Advanced Technology. He gave a vivid illustration of how—and how not—to chair a meeting that will, no doubt, prick the memory of his audience as they sit through meetings in the future.

The Chairman's Summing Up

The conference closed with the summing up by the chairman, R. Baden Hellard, of which the following is an extract:

"The Conference has introduced the management framework necessary to the whole building process and put cost planning in its proper perspective within this framework. It has also developed the problems of communication and operational efficiency between the different members of the building team, and for this reason quantity surveyors, builders, clients and others were invited.

"From the discussions which have taken place it would seem that the value of the conference would have been improved had there been a few more clients, builders, and engineers amongst its membership. This gives a pointer for future development in later conferences.

"It has been pointed out during the conference that the purpose of cost planning is not to produce the cheapest building, but to produce a balance of expenditure within the building so that the various parts of it receive a cost target which will ensure the right quality standards are chosen for a particular function. A variety of viewpoints

VALUE FOR MONEY IN BUILDING

have been put on the methods of cost planning to be used—none of which are regarded by the institutes (or perhaps even by their own particular champions) as being universally applicable or adequate. It has been underlined that they all accord with the established principles of management and there are ways of carrying out the administrative function applicable to our own industry.

"It has been suggested that attention to these administrative procedures are vital to a building industry which is responsible for the largest annual capital expenditure programme in this country—£2,000 millions a year—and that this must have a very considerable effect on the overhead costs of British manufacturing industry.

The Architect as Leader

"The addition of an extra load on to small or even medium-sized offices has been suggested as being a burden beyond their capacity. This may result in a complete rethinking of the architect's whole position and role in the building team. Should he consider himself as the designer of the building with its accent on aesthetics, or as the leader of a building team—the managing director of an industrial process where his role is to guide all those people and departments responsible for producing an efficient, economic and good-looking product, a building?

"This is a key question. Unless the architect can direct the operation, how is he to see that the client's instructions are successfully interpreted, not only in function, space planning, and costs, but also in aesthetic qualities? The opportunity to design buildings where art is paramount and cost of no consequence now occurs once in a generation and only to one architect. The remainder are practising to satisfy the requirements of clients, and the profession's clientele today requires value for money.

"Perhaps the client's opinion of the value of our work is more important than that of our own or our brother architects. It was disturbing to hear the suggestion from one of the discussion groups that the troubles were really all the client's fault, but surely it is the architect's job to make the client aware of the problems involved in designing and executing a building project.

The All-in Service

"It has been suggested that the techniques of management which we are trying to establish, and through which we hope to achieve a unity of purpose in the building team, can be better fulfilled in the atmosphere of the all-in service. If, however, we accept the all-in service operating alongside the conventional building pattern then the two in competition may help to produce a greater productivity, and in the end lead to a better quality product through both mediums.

"If this happens it will be equally essential for the architect to lead the building team within the all-in service, and it would seem, therefore, that he must be in those organizations as well in a directorial capacity. Failing this the aesthetic concept will always be the item that suffers when compromise is necessary.

"The intention of the discussion on the relative merits of the different methods available for cost planning was to assist the development of new or improved methods, so that eventually the selection of a system of cost planning could be made with the same finesse as a structural system is chosen for a given plan form today.

"The question of the relationship between maintenance and running costs to capital costs was the subject of a paper included in the handbook, but not read to the Conference*, and this paper also refers to the need for a consideration by the architect to the techniques used for

construction on site, and this point was taken up by Mr. Hunt.

"It may be argued that a greater regard for constructional facility, or the acceptance of the disciplines of cost control and programming will lead to poor aesthetic design. This should not be; the purpose of these drills is to free more time for the development of the architect's initiative or aesthetic experience, rather than reduce the time, and this should automatically improve the quality of this part of the work.

Communications a Two-way Process

"Austin-Smith reminded the conference that the whole operation of building must be planned from the client's instruction onwards, and at this stage the architect is the only person involved. Therefore, it must be his responsibility to prepare the overall time plan to see that not only is the completion date achieved, but also there is adequate time for the design of the various elements of the building. Success in this aspect of the management task will give the architect the confidence he needs to manage the contract and prevent the disruption of the plans by the client's interference at the wrong time.

"Mr. Leyton stressed that communication must always be a two-way process. First the architect must establish the client's confidence in his ability to manage his affairs, and having established this, hold himself responsible for its execution. Scientific management skills must, therefore, be added to his repertoire, and as a manager, organizing the activities of others, he will have to overcome the problems of communication. In this context perhaps we should look at our established procedures, and it may be that the maxim 'Every time you move something you add something to its cost, but nothing to its value', could be transposed into the design field, and every time the idea is transferred from one paper format to another through sketch designs, working drawings, specifications, schedules, bills of quantities and construction programme until it is finally built, we are adding something to the cost of the idea, but maybe nothing to its value.

"Some of these processes may be essential or may be the result of the division of the building team into separate camps by the contract.

"Junius held 'That the integrity of men is to be measured by their conduct and not by their professions', yet we seem to think that it is only the builder who is in business to make a profit and the architect is not similarly motivated.

"It may be that in the past the architect's fee structure was so adequate as to permit his operation without fear of bankruptcy or perhaps the fact that his mistakes result in an addition to his fee rather than the reverse have permitted us to gloss over these problems.

"But further reference to the principles of management suggest that there are three inseparables—responsibility, authority and accountability—and in the traditional concept accountability is one of these which architects escape, at least within a financial concept.

"The conference has attempted to underline the need for the application of basic principles of management if we are to achieve control of costs; upon which subject the conference was convened. If it has stimulated thoughts and encouraged a rethinking of the relationship between all the members of the building team and of the procedures which we use, perhaps this will have been its principal value."

* * *

The chairman was supported by K. Nealon, president of the Bristol and Somerset Society of Architects, D. J. Bendle, M.B.E., chairman, Quantity Surveyors' Section, Gloucestershire, Somerset and North Wiltshire Branch of the R.I.C.S., George Grosvenor, C.B.E., chairman of the Joint Consultative Committee of Architects, Quantity Surveyors and Builders, and R. Towning Hill, who each chaired a session.

* Research, cost planning and cost control, by Mr. W. J. Reiners, B.Sc.

POLICE GARAGE AND CENTRAL STORES, BIRMINGHAM

Architects: LEONARD J. MULTON AND PARTNER

In association with: A. G. SHEPPARD FIDLER, Birmingham City Architect

Consultants:

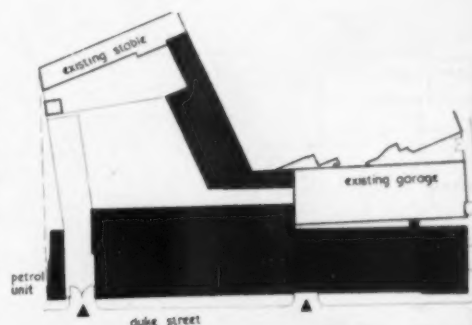
W. S. Atkins & Partners: Structural

A. J. P. Pashler: Services

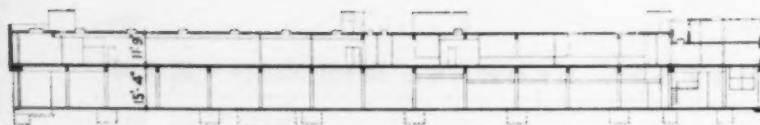
A. G. Robottom: Quantity Surveyor

THE existing police station, mounted police stables and engineering workshop occupied the site allocated for the new building. The architects were required to retain the stables and workshop, and plan a new two-storey building to accommodate the garage and central stores. The mobile police section required as large a garage as possible, served by an existing work-

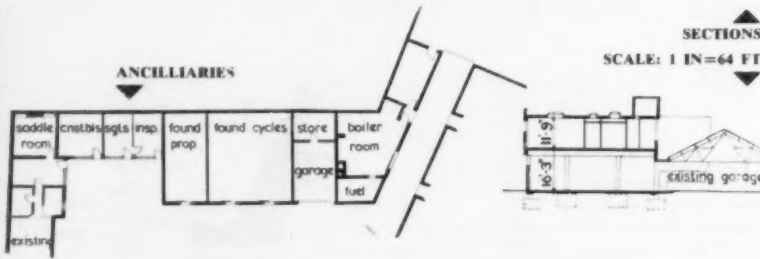
shop, and ancillary accommodation comprising a motoring school, lecture and practical study rooms. A large store for clothing and hardware, with workrooms for alterations and repairs, was required at first-floor level. Police patrols are always on duty, so the premises are used throughout the 24 hours. It was therefore necessary to include suitable



POLICE GARAGE AND STORES

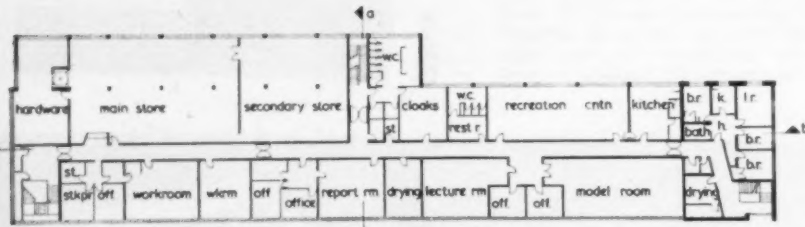


ANCILLIARIES

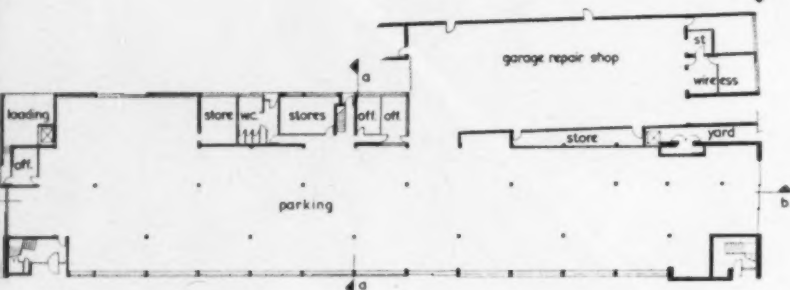


SECTIONS

SCALE: 1 IN=64 FT



GROUND AND FIRST FLOOR SCALE: 1 IN=64 FT



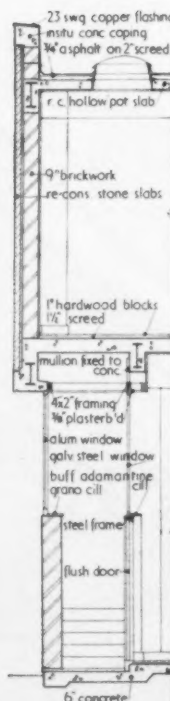
canteen and recreational facilities, cloak and shower rooms, drying rooms for clothes after spells of duty in bad weather, and parade and report rooms.

Two self-contained flats with a separate entrance are provided for married officers, attached to the main block. The flat access is used as an emergency exit from the main building. The existing stables at the rear of the site have been modernised and linked to the main block by single-storey rest rooms, lost property, storage and boiler houses, etc. The main problem which confronted the architects was to accommodate the large number of different-use requirements in a building which had to marry up with existing development and contained within a long, narrow site.

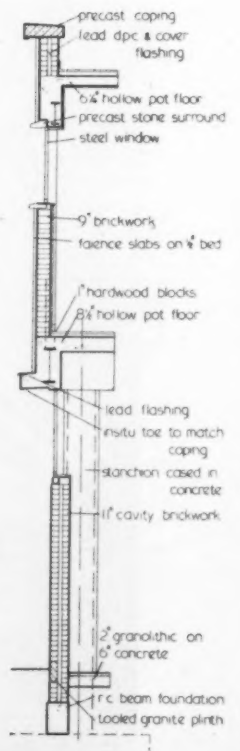
Construction and Finishes

The main block is steel framed. First floor and roof are hollow clay tiles and r.c. beams. Roofs throughout are weathered in asphalt. Partitions: 6in hollow clay tile construction. Sheet metal linings are used to trim openings to skylights and domes. Windows: metal framed, with centre-pivoted opening lights controlled by Teleflex gearing.

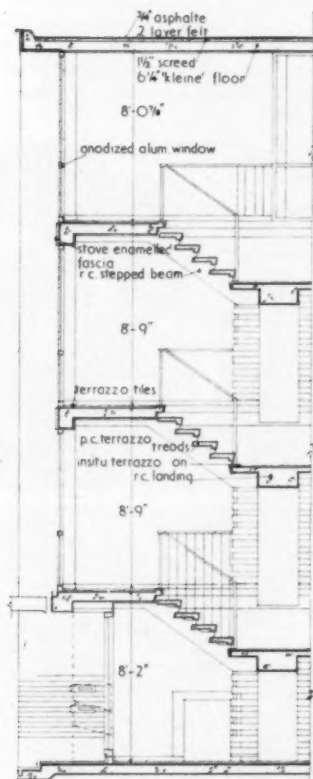
To provide maximum flexibility of use in the garage, the columns are



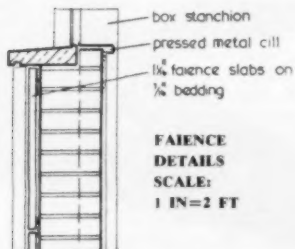
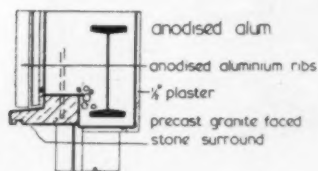
WALL
SECTIONS
SCALE:
1 IN=8 FT



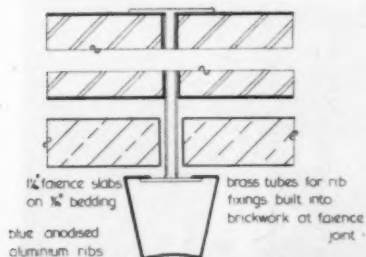
The secondary staircase, constructed of pre-cast terrazzo treads, cantilevered from a central beam



STAIRCASE SCALE: 1 IN=8 FT



FAIENCE
DETAILS
SCALE:
1 IN=2 FT



staggered on plan. They consist of tapered pre-cast reinforced concrete piers, with tooled exposed surfaces. These present a better appearance than cased stanchions, and also reduce the cross sectional area.

External facings: first floor, faience, divided into panels 40ft wide. Two shades of grey-blue are used in alternate panels, separated by matt black anodised aluminium strips. North elevation: Portland stone facings.

Brickwork: black and sand facings, grey facings, London brick. Window surrounds: reconstructed stone.

Medium pressure hot water from an oil-fired automatic boiler. Wall mounted convector units are used throughout the first floor; all pipes are in ducts.

The contract was carried out in two stages from November 12, 1956, to October 31, 1958. Contract figure: £164,997.

Garage at ground floor



POLICE GARAGE AND STORES

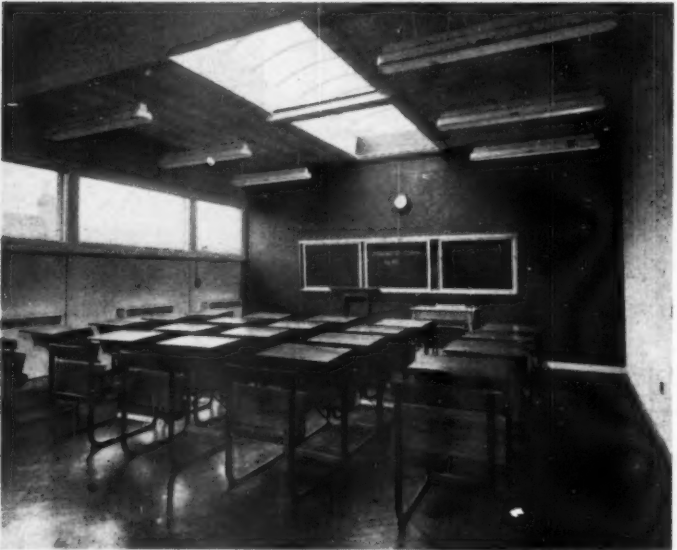
1. Main and secondary stores at first floor. 2. Stores counter and corridor. 3. Canteen and recreation room. 4. Lecture room. 5. Model room at first floor

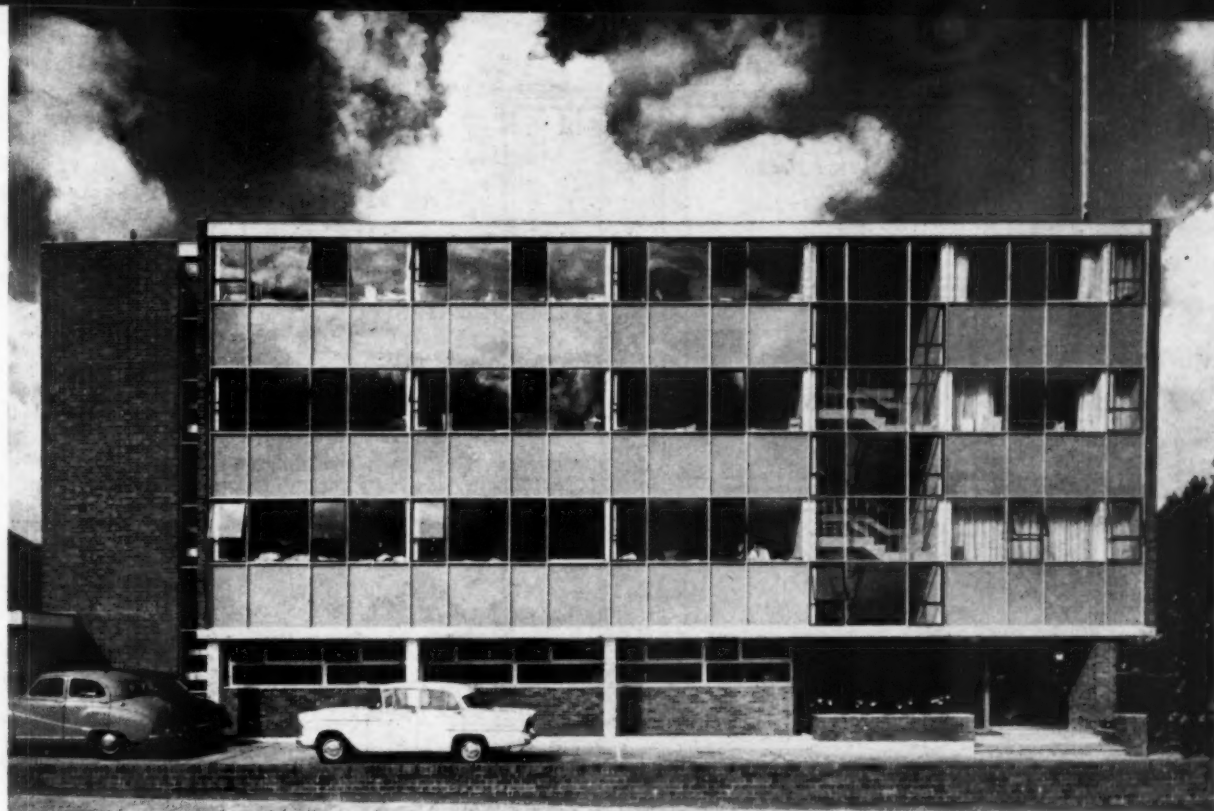


Main Contractors:
PARSONS & MORRIN LTD.

Sub-contractors and suppliers:

Asphalt Flat Roofs: Parmanite Ltd. Bicycle Racks: Alfred A. Odoni & Co. Ltd. Black Facing Bricks: Proctor & Lavender. Cloakroom Individual Lockers, Drying Room Clothes Racks: Parker, Winder & Achurch Ltd. Common Bricks: London Brick Company. Decorative Tile Panel to Main Entrance: Carter & Co. (London) Ltd. Electrical Contractors: Lee Beasley & Co. Ltd. Emalux Wall Finish: John Ellis & Son Ltd. External Faience: Shaws Glazed Brick Co. Ltd. Garage Hydraulic Ramp: Tecalamit Ltd. Glazed Screen to Main Entrance: Glass (Coventry) Ltd. Granolithic Floors: Empire Stone Co. Ltd. Gridway Flooring: John Thompson (Bacon Windows) Ltd. Handrail and Balustrades: Best & Lloyd Ltd.; Bigwood Bros. (Birmingham) Ltd. Heating: Richard Crittall & Co. Ltd. Ironmongery: James Gibbons Ltd. Lifts: Evans Lifts Ltd. London Stock Bricks: Eastwoods Sales Ltd. Metal Office Partitioning: Sankay Sheldon Ltd. Metal Storage Racking: Sankay Sheldon Ltd. Metal Sliding Doors and Timber Sliding Doors: Esavian Ltd. Petrol Tanks and Pumps: Regent Oil Company. Roof Glazing and Dome Lights: Standard Patent Glazing Co. Ltd. Sanitary Fittings: Griffin Foundry Fireplace & Sanitary Fittings Ltd. Signs: Ward & Co. (Leesters) Ltd. Sliding and Folding Gate to Repair Shop: Bolton Gate Co. Structural Steelwork: Redpath Brown & Co. Ltd. Stone Dressings: John Ellis & Sons Ltd. Suspended Floors and Roofs: Kleine Co. Ltd. Terrazzo Floors and W.C. Cubicles: Marboline Co. Ltd. Thermoplastic Floors: Marley Tile Co. Ltd. Timber Storage Racking and Fitted Work Benches: Hoskins & Sewell Ltd. Toilets Incinerator: Griffin Foundry Fireplace & Sanitary Fittings Ltd. Wall Tiling to Cloakrooms: Griffin Foundry Fireplace & Sanitary Fittings Ltd. Windows: Monk Metal Window Co. Ltd. Wood Block Floors: Vigers Bros. Ltd.





The front of the offices, facing due west

OFFICES, BOREHAM WOOD

Architect: MICHAEL LYELL

Assistant Architect: R. P. Broadway

Consultants:

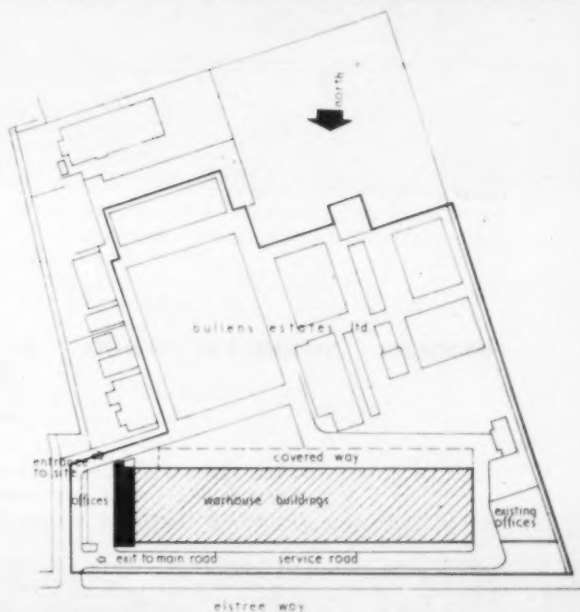
L. L. Kenchington & Partners: Structural

M. G. Bland & Partners: Heating and Electrical

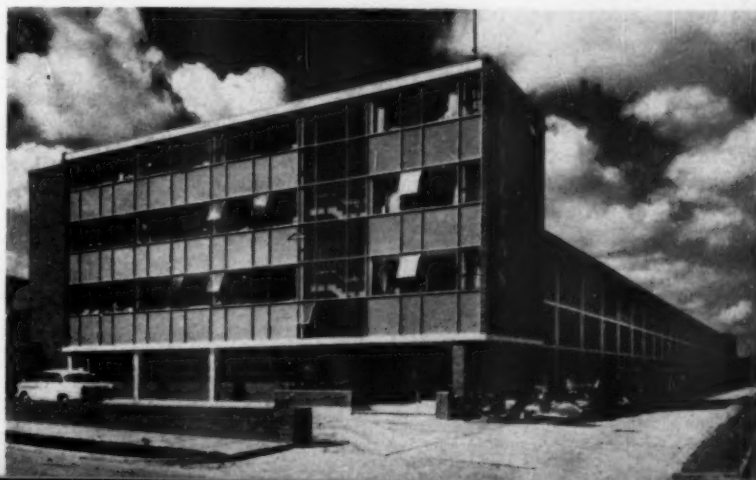
Leslie J. Newton: Quantity Surveyor

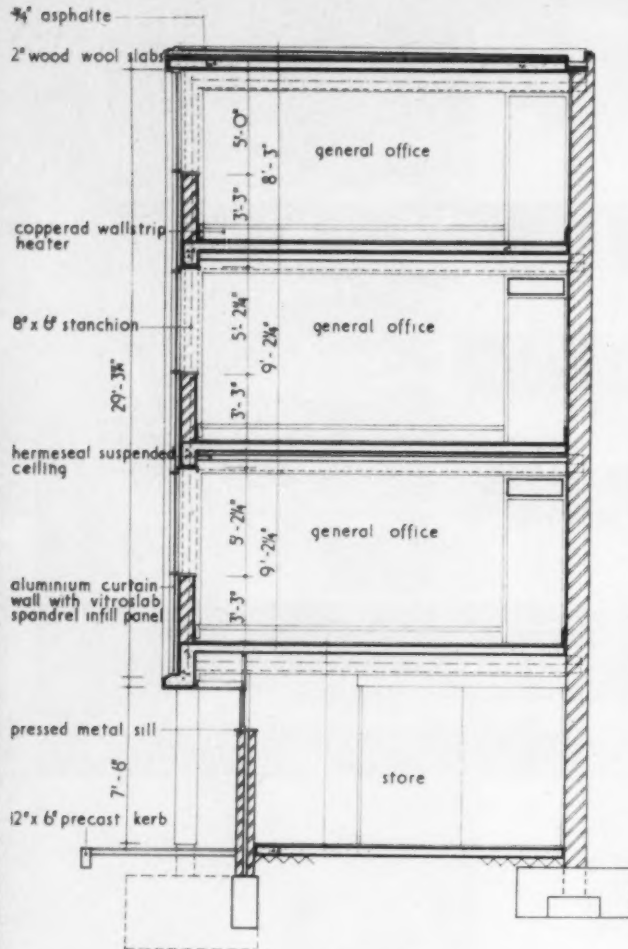
THESE new offices and warehouse for Bullens Organization Ltd. are sited at Boreham Wood, Herts. The nature of the client's business consists of: export packing, casemaking, warehousing, shipping, exhibition, film and theatre furnishings, and home and overseas office and factory removing. A new building was required on a vacant frontage area of their land at Elstree Way, comprising a two-storey warehouse and office block.

Offices: structural steel framework. Floors, roof and staircase: *in situ* reinforced concrete. Walls: cavity brickwork in faced flettons. East elevation: aluminium curtain walling. Steel windows and opening lights. Ceiling: suspended acoustic first and second floors, with recessed fluorescent lighting. Entrance Hall: armour-plate glass entrance door controlled by photo-electric beam across entrance steps. Frenger heated ceiling in entrance hall. Warehouse: precast concrete frames at 15ft centred on mass concrete bases. Roof: Corrugated asbestos, lined internally. Walls: sand-faced flettons. Windows: vertical and roof patent glazing.

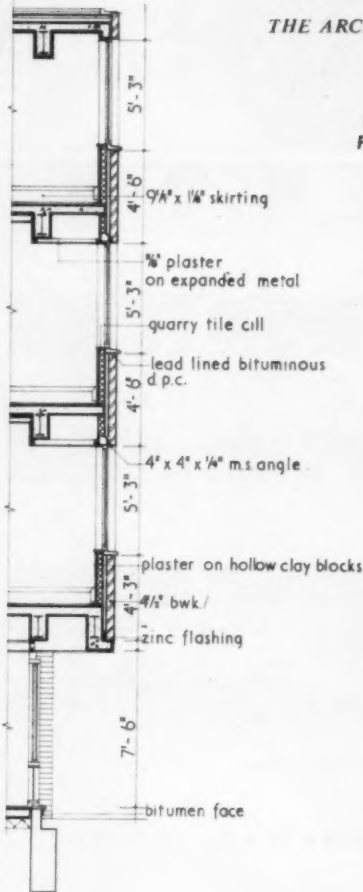


Photos: HENK SNOEK





CROSS SECTION SCALE 1 IN=8 FT



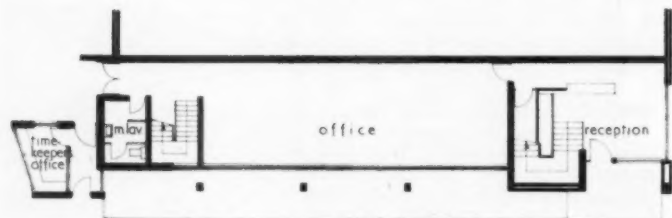
OFFICE, GROUND FLOOR SCALE: 1 IN=24 FT

General Contractors:
F. J. BURLEY & SONS

Sub-contractors and suppliers:

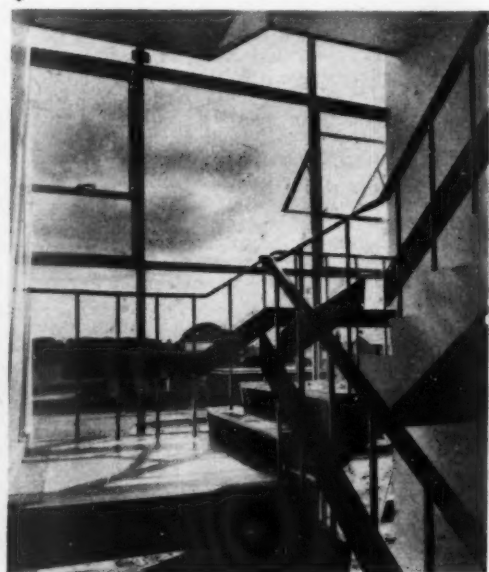
Acoustic Flooring:
Armstrong Cork Co. Ltd.
Acoustic Ceilings:
Hermesal Acoustics Ltd.
Aluminium Curtain Wall and Metal Windows:
Williams & Williams Ltd.
Asphalt Roofing:
H. V. Smith & Co. Ltd.
Electrical:
Courtney Pope (Electrical) Ltd.
Entrance Hall Ceiling:
Franger Ceilings Ltd.
Entrance Door Opening Equipment:
Radiowiser Parent Ltd.;
G. D. Peters & Co. Ltd.
Flag Pole:
Piggott Brothers & Co. Ltd.
Granite Facing:
Fenning & Co. Ltd.
Granolithic Floors (Warehouses):
Johnson Floor Co. Ltd.
Heating:
Clark Hunt & Co. Ltd.
Ironmongery:
Standard Range & Foundry Ltd.
Joinery Fittings:
F. E. Ward (Hammersmith) Ltd.
Maple Strip Floor (Warehouse 1):
The National Flooring Co. Ltd.
Sanitary Fittings:
Edward Marshall Ltd.
Terrazzo Paving:
The Arcanum Terrazzo & Stone Co. Ltd.
Ventilation (Warehouses):
Colt Ventilation Ltd.
Warehouse Pre-cast Portal Frames:
Stent Precast Concrete Ltd.
W.C. Partitions:
Venesta Ltd.

OFFICES, BOREHAM WOOD



The recessed entrance with armour-plated glass doors controlled by a photo-electric beam across the steps

The staircase landing with window overlooking the entrance to the building



BOWATERS THAMES DIVISION MILL OFFICES, NORTH FLEET

Architects: FARMER AND DARK

Quantity Surveyors:

E. C. HARRIS & PARTNERS

THESE new offices complete the final stage of a large development programme on the site of Bowater Paper Corporation Ltd., North Fleet. The central research laboratories and offices for the engineering division were completed last year (see A. & B.N., September 3, 1958).

Planning

More room was required for the administrative staff of the Thames Division Mill, with welfare arrangements provided at ground floor connecting with the mill. The requirements resolve in a relatively large ground-floor area with three smaller floors of office accommodation over.

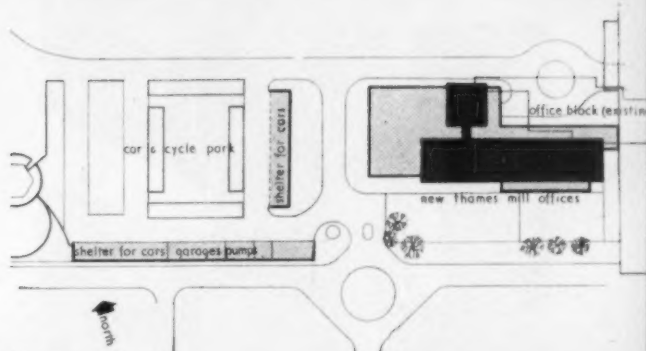
Construction

A light steel framework was used similar to the E.D.C.R. laboratories, except that: (a) floor and roof beams are kept 1ft 6in deep; (b) the steelwork module does not coincide with the planning module. It was felt undesirable to have stanchions on partition and external wall lines, so the centre line of the column was slipped 10in in both directions from the planning module upon which all the partitions, external walls and ceiling panels are located. Generally speaking, this has been successful but it meant that existing steelwork could not be used for suspending the ceiling panels, and where roof lights occur in accordance with the steel module the corresponding opening in the ceiling had to be treated specially as it is 10in off module. The module used here is a 3ft 4in square similar to the E.D.C.R.L.

Floors: 2in pre-cast units spanning from beam to beam at 3ft 4in centres, with a structural screed topping.

Partitions: flint lime bricks or broad Acheson clinker blocks. Flexibility was not considered an important enough feature to warrant a more expensive system of flexible partitioning.

Walls: mainly curtain walling. The droppers are 4in by 4in at 3ft 4in centres. Fast framed were fixed between the droppers and after glazing the complete outside of the window walling was encased in stainless steel, except where opening lights occurred. The stainless steel used was a 19/9 chromium nickel, so called Admiralty quality, which has been found to give the best possible protection against rusting (limited areas of 18/8 were used on E.D.C.R.L. and were found to rust).



Photos: COLIN WESTWOOD



The Thames Mill Offices are adjacent to the works' entrance, with the machine house in the background. Below, relationship of the office floors to the welfare block at ground floor



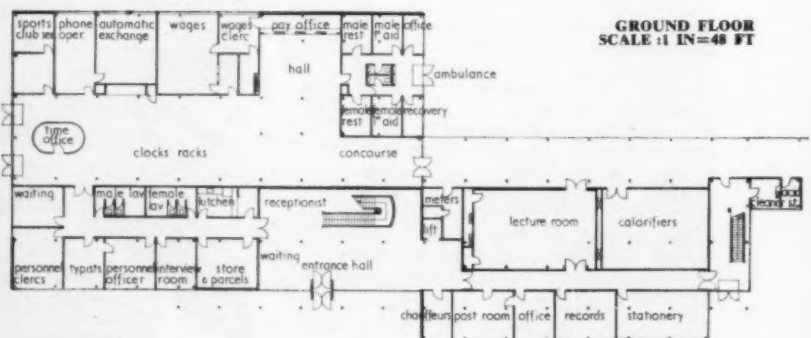
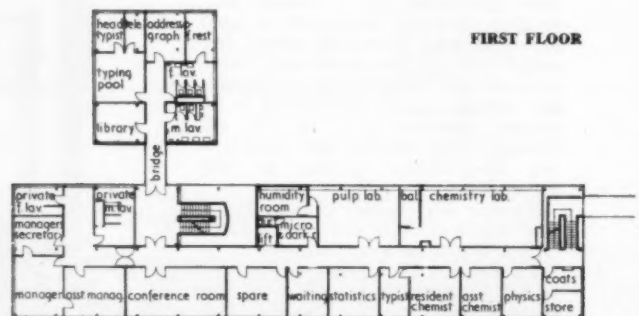
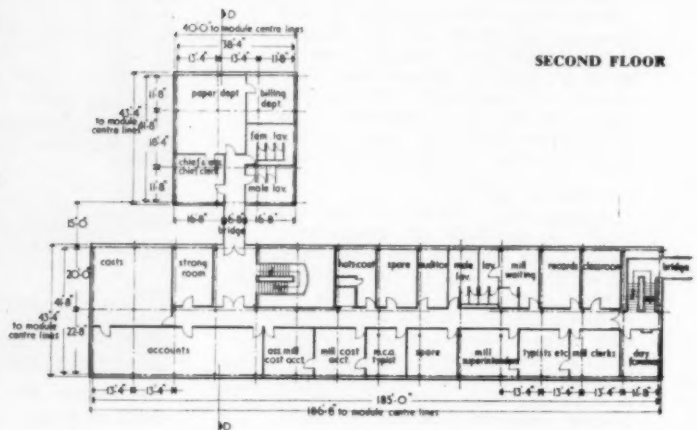
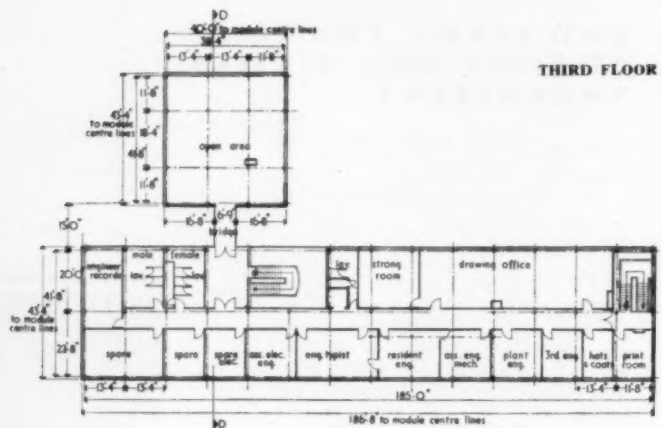


Upper staircase flight

Conference room



Ground floor staircase



THAMES MILL OFFICES

External spandrels are cast glass, fired with colour on the inside. The internal spandrel consists of 1 in Rocsil stuck to Asbestolux, and vectair heaters with a floor to cill steel panel with a stone finish. Solid panels of walling are pre-cast concrete slabs with marble chip facing, fixed direct to steel droppers. These panels have a clinker block lining inside. Fascias are also pre-cast concrete but with white Saivo glass mosaic facing.

Ceilings: fibrous plaster panels with acoustic slots, fixed to a sub-grid of light steelwork. The removable panels have been kept down to 3ft 4in by 1ft 8in, other panels are 3ft 4in square, and the remainder of the ceiling is made up with fibrous plaster cornices (where no blind-boxes are required) and complete fibrous plaster light troughs into which are fixed all the fluorescent lighting.

All stanchion casings are fibrous plaster except in areas where damage may be expected and here hardwood strips have been employed. In the welfare area, ceilings are generally solid plaster with flush access panels to services.

Services

Heating is entirely by vectair along the perimeter walls, fed by low temperature water. Virtually all external spandrels are fitted with heaters, except where stanchions occur off-centre.

Lighting: fluorescent lighting is recessed, with a system of louvres flush with the ceiling finish. In lavatories, corridors, and areas not requiring such a high illumination, tungsten has generally been used and the fittings are also recessed into the ceilings. In the case of solid plaster ceilings on the ground floor of the welfare area, fluorescent fittings have been fixed to the plaster face.



Drawing office, third floor

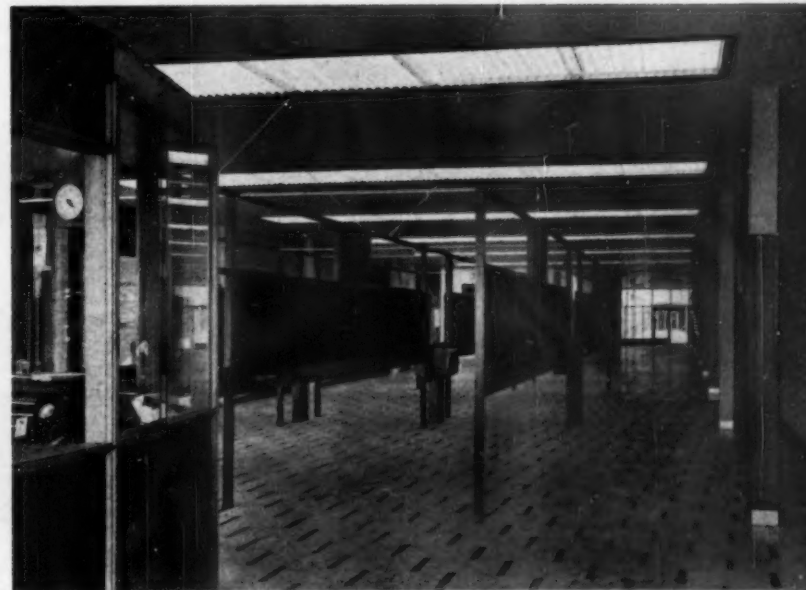
Main entrance hall

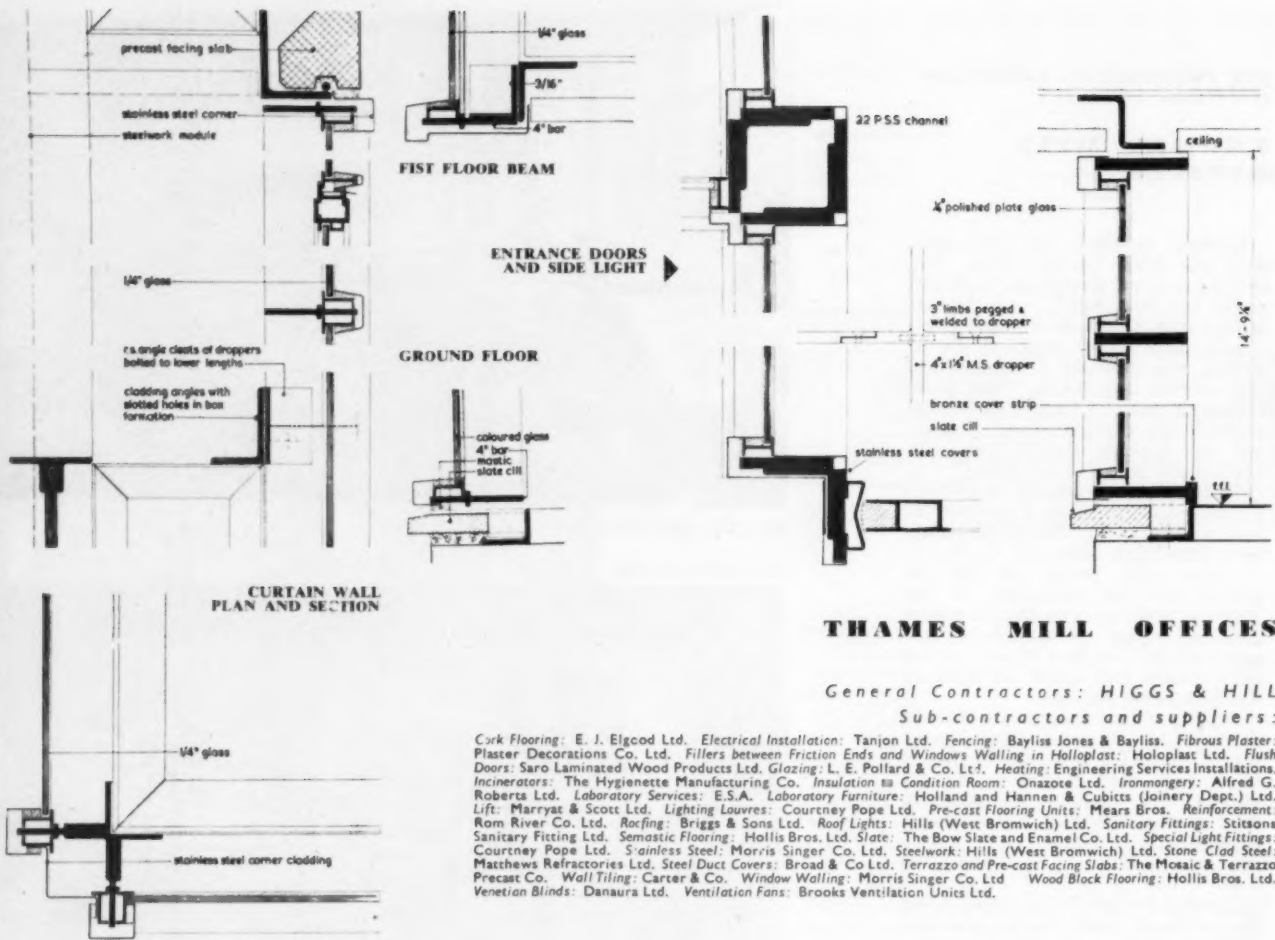


First-floor laboratory



Time office, and clock-card racks





THAMES MILL OFFICES

General Contractors: **HIGGS & HILL**

Sub-contractors and suppliers:

Cork Flooring: E. J. Elgcod Ltd. Electrical Installation: Tanjon Ltd. Fencing: Bayliss Jones & Bayliss. Fibrous Plaster: Plaster Decorations Co. Ltd. Fillers between Friction Ends and Windows Walling in Holoplast: Holoplast Ltd. Flush Doors: Sars Laminated Wood Products Ltd. Glazing: L. E. Pollard & Co. Ltd. Heating: Engineering Services Installations. Incinerators: The Hygienette Manufacturing Co. Insulation in Condition Room: Onaxote Ltd. Ironmongery: Alfred G. Roberts Ltd. Laboratory Services: E.S.A. Laboratory Furniture: Holland and Hannen & Cubitts (Joinery Dept.) Ltd. Lift: Marryat & Scott Ltd. Lighting Louvres: Courtney Pope Ltd. Pre-cast Flooring Units: Mears Bros. Reinforcement: Rom River Co. Ltd. Roofing: Briggs & Sons Ltd. Roof Lights: Hills (West Bromwich) Ltd. Sanitary Fittings: Sitacons Sanitary Fitting Ltd. Semiotic Flooring: Hollis Bros. Ltd. Slate: The Bow Slate and Enamel Co. Ltd. Special Light Fittings: Courtney Pope Ltd. Stainless Steel: Morris Singer Co. Ltd. Steelwork: Hills (West Bromwich) Ltd. Stone Clad Steel: Matthews Refractories Ltd. Steel Duct Covers: Broad & Co. Ltd. Terrazzo and Pre-cast Facing Slabs: The Mosaic & Terrazzo Precast Co. Wall Tiling: Carter & Co. Window Walling: Morris Singer Co. Ltd. Wood Block Flooring: Hollis Bros. Ltd. Venetian Blinds: Danaura Ltd. Ventilation Fans: Brooks Ventilation Units Ltd.

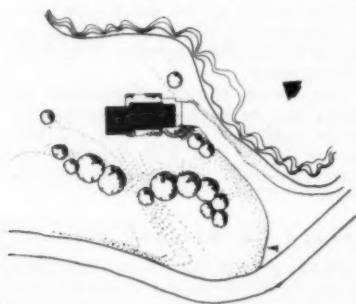
Curtain wall facade, and main entrance





Photos: DONALD HAGSTROM

View from north-east. The screen of trees tempers the summer heat

**HOUSE AT ST. PAUL, MINNESOTA, U.S.A.**

Architect: GERALD STANWELL

NORTHOAKS, where this house is built, was once a single broad estate. It is now a closely protected residential area where every visitor has to report at a lowered boom before being allowed to proceed. The plans and specification of every intended house have to pass a North-oaks Association, as well as the usual building code.

Site

There may be several alternate sites where the building owner is allowed and obliged to place his house. In this case it was finally agreed that the best orientation placed the house organically at the edge of the highest ridge with the principal windows facing the uninterrupted view (N. to S.E.), embracing the small lake and distant trees. Part of the challenge was to include in the living area the friendly rays of the south-west sun.

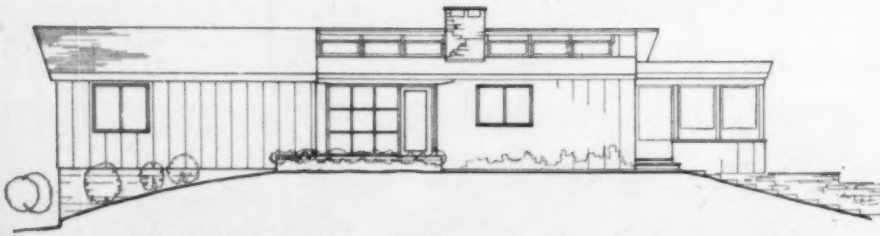
A natural belt of trees shields the front of the house from the road. The

new driveway had to be partly excavated.

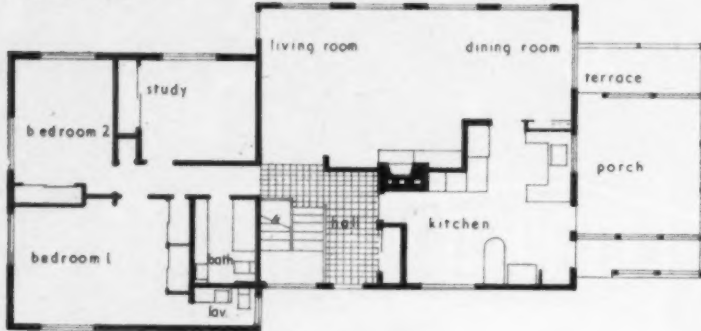
The use of the ridge towards the lake made the front and kitchen entrances accessible from the higher level, and garage, walk-out basement or lower floor and recreation area readily accessible at the lower level with very little regrading of ground levels.

Problem of Aspect

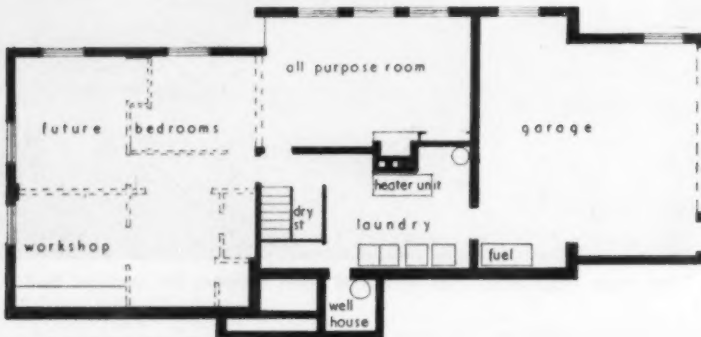
The basic design problem was one of aspect, to include sunlight and view without creating a self-conscious glasshouse. The aim was to solve the problem boldly without making the structure unusual enough to scare every would-be contractor into a high bid. Even so, it still happened to some extent. The slightly unusual clerestory designed for the full length of living room and working area of kitchen pushed several bidders above approximately £10,700 (\$30,000). However, after making carefully considered



South-west elevation showing, below hall and staircase window, planter omitted from the present scheme



MAIN FLOOR LEVEL—SCALE: 1 IN=16 FT



WALKOUT BASEMENT LEVEL

The screened porch has clerestory windows which are designed for the full length of the living room and kitchen working area. Steps lead from driveway below



THE ARCHITECT and Building News,
16 September 1959

omissions, an out-of-town contractor finally came in with a most reasonable figure under approximately £9,650 (\$27,000).

The client had a limited budget on which to obtain a residence, at least ultimately worthy of an excellent site.

Essentially, of course, the aim was to give the client the space he wanted, together with the character he was looking for—a challenge of design versus a budget. Moreover, it was insisted that future development, in appearance as well as accommodation, had to be considered.

It will be noted from the scale elevations that two compositional elements had to be omitted—the long low planter in front and the balcony at back. The footings for the former have been included and both elements will be completed in due course. The balcony will feature the owner's special plastic handrails. The small open terrace leading from the screened porch also had to be omitted, but will be completed when the children can be trusted to use the area in safety.

Interior Planning

In spite of the limited budget, an attempt has been made to practise the basic principles of dramatic contrast, notably in the use of a comparatively low entrance hall with its flat plastered ceiling and the high open beam sloping ceiling in the living and dining areas. This latter feature also gives the working end of the kitchen an interesting raised portion which, at the same time, gets the non-heating effect of top light as well as a welcomed increase of kitchen cabinet space.

The broad aim in disposition of rooms was to keep the sleeping area to the cool N.W. and the living and kitchen areas well knit together towards the S.E. and service accessibility.

Return To Kitchen Meals

As against the more formal customs of the Colonial period, there is now a trend away from the small efficiency kitchen unit to the spacious kitchen which provides ample space for family meals, especially for the children. This, too, is preferred close to the most essential kitchen appliances which have to be as labour saving as ever, including garbage disposal unit in one of the double sink compartments, waist high ovens, extract fans and so forth.

The client's wife also wisely demanded a supervision window over her sink to take care of children and/or guests on the porch.

General Planning Features

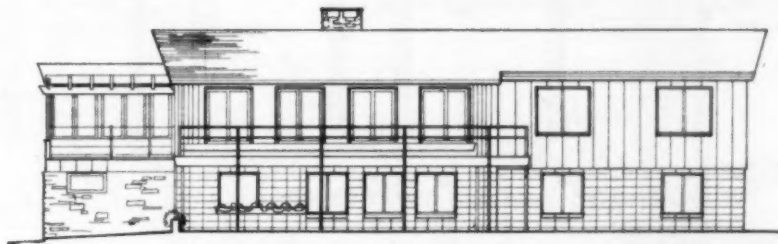
Houses at Northoaks are serviced with electricity and telephone. Each house has to provide its own well, septic and settling tank, field drainage



Above, living room, looking through towards dining area. Sliding door leads to the kitchen. Right, another view of the living room and dining area. Upholstery is dark tan and the carpet, gold



North-east elevation showing balcony omitted from present scheme ▶



HOUSE AT MINNESOTA

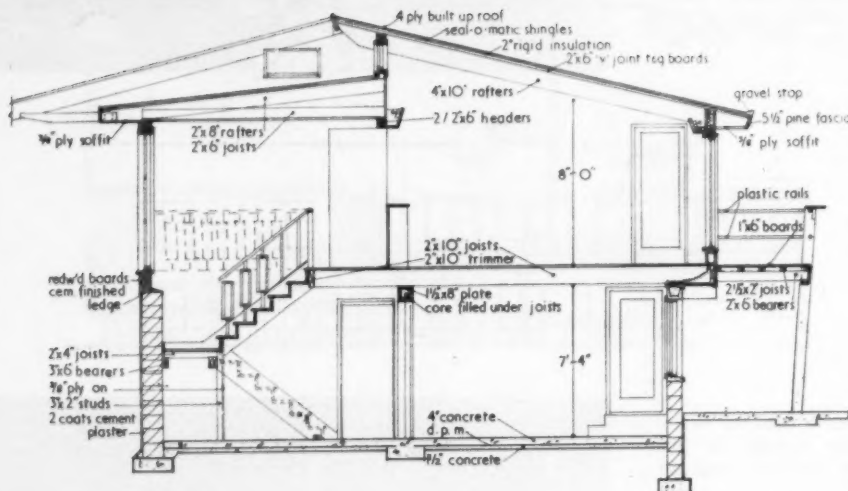
Below, kitchen, looking towards working area with its raised ceiling and clerestory lighting. Cooking canopy on left encloses an exhaust fan. Right, view of built-in wardrobe in the main bedroom. Beyond, private bathroom



HOUSE AT MINNESOTA



View of clerestory over cabinets in working area of kitchen. Photo has been taken from screened porch through the removable sliding windows which also give light to the sink



CROSS SECTION
SCALE: 1 IN=8 FT



Entrance hall, showing hall window of translucent glass. Steps lead down to lower level and children's all-purpose room

(if desired) and drain tile. A drain pool may also prove desirable.

The house is equipped with a £375 (\$1,050) San-Equip Master Septic Tank. The grease trap and drainfield are 200 feet from the house. Double precaution has been taken against damp, including the quite usual 4 in pitched agricultural drain tile which runs around the footings.

Construction

Concrete block foundation walls and 4 in concrete slab over compacted sand fill have been used at the lower level, stacked bond on NE side, all painted white on exterior. The main floor is double insulated frame construction with red wood siding laid horizontally (preference of owner). Exposed select fir beams, at 4 feet centres at 2 3/4 : 12 pitch, support 2 in by 6 in V-jointed ceiling planks with one inch rigid insulation and 4 ply built up roof, over living and dining areas, also part of kitchen. The rest of the roof has similar roofing finish and in the bedroom wing, 8 ft plastered ceilings on 1/2 in rocklath.

The construction of garage ceiling was simplified by using a flexicore slab which avoided the use of a steel beam at the garage entrance. This slab also solved the weatherproofing problems of the open terrace above.

Standard sliding windows have been used throughout, except for fixed clerestory which are also standard units. Brick chimney serves two fireplaces (raised hearths in both cases). Floors include a recessed sub-floor for wall to wall carpeting in living and dining areas, ceramic tile in entrance and both bathrooms, linoleum in kitchen.

Services

The heating of the house relies mainly on an integral draught inducing warm-air system from an oil-fired furnace, the thermostat for which is located in the living room off the entrance hall. The two main sheet metal service ducts go the full length of the house, with smaller branch ducts between joists to perimeter heating registers in all rooms.

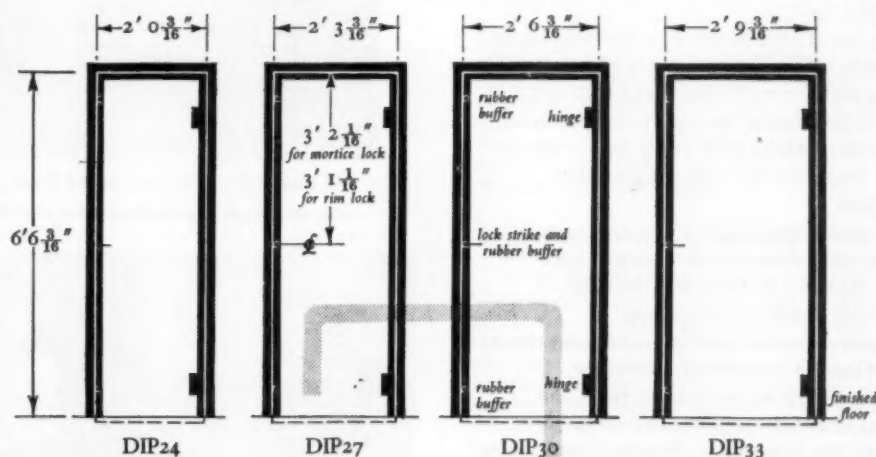
An electric hot water heater and incinerator are located in the furnace area. The fans in the heating system can be used for partial air conditioning, and the ducts and blowers have been made large enough to allow for complete air conditioning in the future.

General Contractors:
HAUBIE AND BOEHM

Sub-contractors and suppliers:
Brickwork: Leegard Bros. Curtains: Dorothy J. Howie. Electric Work: A. W. Berggren. Furnace: Waterberry Unit. Kitchen Cabinet Work: Anthony Boehm. Masonry: Arthur Tachney. Painting: Ray Toltzman. Timber: I. B. Weissen Lumber Co. Well: Taylord & Sampson.

HOPE'S STEEL DOOR FRAMES

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SIZES are taken into rebates at head and jambs, and to finished floor level.

HOPE'S Steel Door Frames are manufactured from zinc-coated mild steel sheet of 18 BG and painted one coat of grey calcium plumbate rust-inhibiting primer before despatch.

Each door frame is provided with the following:

- 8 galvanized countersunk wood screws.
- 2 zinc-plated 5-knuckle steel hinges, one leaf welded into the frame and the other assembled with loose sherardized pin.
- 1 hot-dip galvanized adjustable lock-strike plate with mortar guard.
- 3 rubber buffers or shock absorbers are inserted in rebate of the lock jamb.


Base-ties are of heavy corrugated steel and are adjusted before despatch to set frame to level of finished floor.

Floor fixing plates are provided at bottom of each jamb.

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HERE'S SOMETHING TO SHOW YOUR CLIENTS

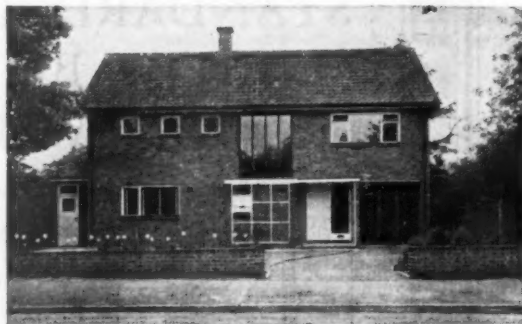
Mr. Brennand pays £68.13.1d. a year for "all the heating and hot water we could wish for"

Just over two years ago, Mr. R. O. Brennand had a 'Potterton' DOA Series Oil-Fired Boiler installed in his 4-bedroom house at Bushey, Hertfordshire. So happy is he with the boiler's running costs, that he wrote and told us about them. We quote from Mr. Brennand's letter:

"I have kept the record of the oil consumption as carefully as I can," he says. "We have certainly had all the heating and hot water we could wish for. I have calculated the cost of the oil at . . . £68.13s.1d. for the year to 25th March 1959. These figures are far less than I had bargained for, and I regard them as very reasonable."

The boiler was delivered to the site as a complete packaged unit, right down to the last nut and washer. From that day to this, Mr. Brennand's 'Potterton' Boiler—automatic as the sunrise—has never been a spot of bother and never will, due to a Planned Maintenance Service. Mr. Brennand is a very satisfied customer, and typical of 'Potterton' Boiler owners everywhere. To these people, Mr. Brennand's running costs come as no surprise. Nor to anyone else who knows the vast difference in thermal efficiency between a converted boiler and a 'Potterton' Oil-Fired Boiler, designed for the fuel it uses and nothing else.

Clean, quiet and automatic—Mr. Brennand's 'Potterton' Oil-Fired Boiler at work



Mr. Brennand's is a cavity-walled house, with double glazing to all windows and doors



Temperature is controlled at 70° in the two main living rooms

DESIGN OF THE HOUSE It is a cavity-walled house, the inside skin being of Thermalite blocks. First floor ceilings are insulated with fibre glass in the loft. There is double glazing to all windows and doors. A separate lounge, dining room, kitchen, larder and cloakroom occupy the ground floor; four bedrooms and a bathroom occupy the first floor. Area of the house is 1,962 sq. ft.

Architect: Robert Neil, A.R.I.B.A.,
Dawe, Carter & Partners.
Builder: S. & K. Darvill Ltd.

'POTTERTON' Oil-Fired BOILERS

the Key to comfort



THOMAS POTTERTON LIMITED, 20/30 Buckhold Road, London S.W.18. A member of The De La Rue Group.

INSTALLING THE HEATING SYSTEM All 7 rooms—plus the hall landing and downstairs cloakroom—have radiators. A small radiator (10 sq. ft.) is also in the linen cupboard and a towel rail is in the bathroom. The radiators have a total heating surface of 318 sq. ft. Temperature is controlled at 70° in the two main living rooms, and 65° in the bedrooms. The boiler has an electric pump and a Venner Time Switch. Installing engineers: White, Bays & White Ltd.

Information Digest

OFFICIAL PUBLICATIONS

- **British Standard Specifications**, from British Standards Institution, British Standards House, 2 Park Street, London, W.1. Telephone: MAYfair 9000.

B.S. 1246: 1959. Metal Skirtings, Picture Rails and Beads. Price 4s., plus postage.

B.S. 1410: 1959. Mastic Rock Asphalt for Flooring. Price 4s. 6d., plus postage.

B.S. 2655: Part 2: 1959. Single-speed Polyphase Motors for Lifts. Price 4s., plus postage.

B.S. 3125: 1959. Power-driven Mast Hoists for Materials. Price 5s., plus postage.

B.S.I. News. August, 1959.

B.S. 1246 for metal skirtings and beads is a revision which now allows the use of galvanized finish by "tight-rolling" the zinc on to the steel. The sections, in addition to familiar profiles, now have two forms for use where plaster is worked to a break line and for a screed-bead for slab work, the latter adaptable for height.

B.S. 1410 is the seventh revised standard in the asphalt series, all of which have now been altered to suit technical improvements. The constituents of mastic asphalt flooring vary according to the type of traffic to be expected, so this edition ranges from "light-duty" traffic to industrial flooring where "heavy duty" is imperative. A new section allows for waterproof bases for flexible tile and sheet floorings. There are the usual specifications for ingredients and control of re-melting of asphalt blocks on site. Tests are either as in B.S. 598 or those of the Institute of Petroleum, pending formulation of B.S. tests. C.P. 204, on *in situ* flooring, is summarized in an appendix.

B.S. 2655: Part 2 is essentially for lift specialists, but a feature that is new is a clause dealing with the "Class of Lift Rating". This ranges from 90 to 180 starts per hour and intermediate sequences, so results in closer control of the lift-motor design. Only motors in excess of 1 h.p. are considered.

B.S. 3125 is a new standard controlling the manufacture and guiding the use of builders' hoists of the mast type, up to 50cwt capacity. Because of the risk of serious wear from exposure to building dust the design and test requirements are comparable with those for cranes in character. Qualities of material used in the lift are detailed and the design allows for eccentric loading of the platform.

B.S.I. News, August issue, is an emergency one in view of printing difficulties. There is a brief note on B.S.I.'s new centre at Hemel Hempstead New Town, shared with the Canadian Standards Association. The design, by Bruce Martin, F.R.I.B.A., staff architect on standardization, is based on the 4in module.

- **Sulphate Attack on Brickwork.** B.R.S. Digest No. 123. H.M. Stationery Office. Price 4d.

Previous Digests have dealt with sulphates in ground, chimneys and hardcore. This considers the effects on brickwork, including mortar. Three materials are needed for attack to occur, i.e., Portland cement, soluble sulphate salts and water. Sulphates remaining damp in association with cement will cause expansion, loss of strength and ultimately disintegration. If the wall dries quickly and remains dry, no trouble should be experienced. Walls intermittently wet are also not usually affected. The Digest says soluble sulphates are present in most bricks, in varying percentages. Engineering bricks may have less than 0.5 per cent, while Flettons may have 3 per cent, but with this difference, that the salts are mainly gypsum, which is less troublesome than others.

Rendering in rich mixes on rich sulphate-containing bricks may cause failure of the surfacing because damp-

ness, penetrating to the bricks by cracks in the rendering or insufficient weathering of top edges, releases the soluble salts. Parapets exposed on two sides, rendered one or two sides, are also prone to damage.

Remedial measures start by stopping dampness. Extraction of the soluble salts is impracticable, hence improved weatherings and added surface protection, such as the addition of weatherboarding or tile hanging, must be considered. Only fully protective measures are worth doing, of which re-rendering is not one, because entry of water will not necessarily be stopped simply by that form of protection which, in itself, is liable to cracking. The same argument applies in new building work, in that, the causes of sulphate action being proved, only fully adequate protection will avoid trouble, such as provision of d.p.c. under jointed cills, good overhangs and d.p.c. under copings and good detailing at reveals and corners. If thorough protection from damp cannot be ensured, as in a parapet or boundary wall, the best course is to use a brick having a low percentage of soluble sulphate salts. Dense renderings must always be avoided as these hold back dampness and do not breathe. Another course is to use sulphate-resisting Portland cement.

- **Housing and Building Statistics for Europe. Quarterly Bulletin.** Economic Commission for Europe. Sales Section, United Nations, Geneva, Switzerland. Price 4s. 6d.

Covering many factors in the building industry, this publication, coming out quarterly, reports the state of the countries concerned in an illuminating way but, as always, too late to be able to reverse trends. Thus we find that building-trade employment dropped by 78,000 in the first quarter of this year in the U.K. This is a small percentage when compared with Austria, whose unemployed rose by three times, to 142,000, in the same period. (One wonders whether this is strictly correct, in that this report, covering the first quarter of the year, includes winter weather, which always results in slowing of building work, hence produces only warm-weather building-trade employees.) Brick production dropped, too, in all countries except Norway, where there was a gain of 16,000. The wholesale prices of materials showed a slight average fall during the same period.

- **Choice of Careers. No. 92. Professional Engineers.** Central Youth Employment Executive. H.M. Stationery Office. Price 1s 9d net.

While acknowledging that the engineer is ubiquitous, this title is surely as vague as could be imagined. The last paragraph of the Introduction says that "hardly any two engineers have exactly the same work and no brief study of engineering can do more than indicate some of the main features of the profession". It would surely have been better to sort the engineers into categories instead of lumping them altogether. What parallel is there between a civil engineer and an aeronautical engineer that allows both to be introduced in this little booklet?

Twenty-five professional bodies are listed in Appendix I, ranging from chemical engineers to engineers and shipbuilders: in addition, the address of the Professional Engineers' Appointments Bureau, at 9 Victoria Street, London, S.W.1, is given (at least that is where it was, prior to demolition, the present address being 39 Victoria Street, S.W.1, telephone Abbey 1737) where introductions and advice are available. The Technical and Scientific Register, Ministry of Labour and National Service also gives similar help.

Training is outlined—necessarily sketchily—in chapter two, with descriptions of full-time, "sandwich" and part-time study courses. Entry by craft apprenticeship is also available in some industries but normally craft training as

Information Digest (continued)

a preliminary to professional training is not encouraged. The work that engineers do is the subject of chapter three and includes research, development, design, maintenance, etc. Chapter four describes the interests of the different kinds of engineer, while in chapter six it is said that there were about 80,000 professionally qualified engineers in 1956, with 30 per cent increase expected by the present time. Salary levels are indicated and appear to be lower than commerce would offer.

- **Housing and Building Statistics for Europe.** Annual Bulletin: 1957. United Nations (1958). H.M. Stationery Office, P.O. Box 569, London, S.E.1, or Shops. Price 3s.

The information is given mainly in tabular form so needs close study and comparison of one entry with another to find the significance of much of the data. The first table gives estimated populations and increase rates for each of the twenty-five countries named, which include Spain, Portugal, Greece and a number of "iron-curtain" countries. Two are expected to have a falling population rate—Ireland and Eastern Germany. The highest increase rate is Turkey's 27.1 per 1,000, against the U.K.'s 3.0. Poland is the next highest at 18.5. No country has an increase rate so low as the U.K.

Table 2 gives the number of households or dwellings in each country and their occupancy. While the average condition in the U.K. is represented as 0.78 persons per room, Yugoslavia has 2.33 per room, Ireland 1.08, Greece 2.24 and the urban parts of Russia have 1.52. Table 3 analyses the types of dwelling, giving information very similar to the UNESCO publication "Housing Finance" (noticed in Information Digest in the issue of 11.2.59) but includes percentages of those with piped water, electricity and fixed bath. Switzerland, in towns, has 69.1 per cent fitted with baths, while the U.K. has 64.5, both very high figures compared with most other countries which suggests that the shower, popular on the Continent, has been ignored. Finland with 53.9 per cent in its rural areas against only 24.8 per cent in its town houses is the oddest anomaly.

Table 4 gives occupancy of dwellings by the number of rooms. Here the U.K. has 1.1 per cent living three to a room but Finland in rural areas has 16.1 per cent, while in towns the figure is 14.3 per cent. The highest occupancy is in Yugoslavia with 19.7 per cent at the same high occupancy. Table 5 gives post-war construction figures, Table 6 the number of dwellings finished in that period, while Table 7 gives the types of dwellings provided in the same period. Other tables give additional variants.

Table 11 gives Building Materials Wholesale Prices based on those in 1953 (taken as 100). The U.K. cost of cement is given as 113 while in Yugoslavia it is 114, Greece 125, Finland 104, Western Germany 101, Turkey 153, Poland very steady at 100, Portugal 102, while Spain rose to 151. Softwood figures are: U.K. 108, Yugoslavia 175, Finland 89 and Spain 193. Figures for bricks are: U.K. 113, Yugoslavia 132, Finland 114 and Spain 163. Seven commodities are listed where figures are available but none is quoted for "iron curtain" countries. Table 13 gives consumers' prices and rents, in which the U.K. figure (based on 1953=100) is 118, while Yugoslavia is 137, and Finland 190. The appendix is devoted to explanations of the tables and to definitions.

PROFESSIONAL ASSOCIATION PUBLICATIONS

- **Organ Cases for Parish Churches,** Church Information Office, Central Council for the Care of Churches, Church House Bookshop, Great Smith Street, London, S.W.1. Price 1s. 8d., inc. postage.

The booklet explains the parts of an organ pipe so that the designer of the case may understand why some recommendations are made. Four arrangements suitable for one



The Berkeley Square, London, showrooms of Standard Motors Ltd, have recently been completely redesigned, and a striking new feature is a lumenated ceiling lighting system which covers 2,317 sq ft

organ stop of 23 pipes are shown, all symmetrical and with varying heights of "mouths" on the pipes, which can be made any height above the inlet without being related to the overall height of the pipe. Sketches of old and new cases are given, all very decorated and decorative, but none in a modern mode, as if to discourage new departures. The booklet is helpful in describing the structure of an organ and how a stop is made up of a number of pipes operated from one wind chest, each stop being fed from this same chest, although, strangely enough, this important point is not brought out. The position of the organ in the church is also considered, although the statement that the choir, if any, must be near the organ is not supported in fact in very many cases: certainly it is better if the choir and organ are close together. There is no reference to the fashion prevalent at one time of splitting the organ pipes into batteries distributed about the east walls—surely the antithesis of good practice for small organs. A companion volume, "Organs in the Parish Church", discusses this matter of organ location in more detail.

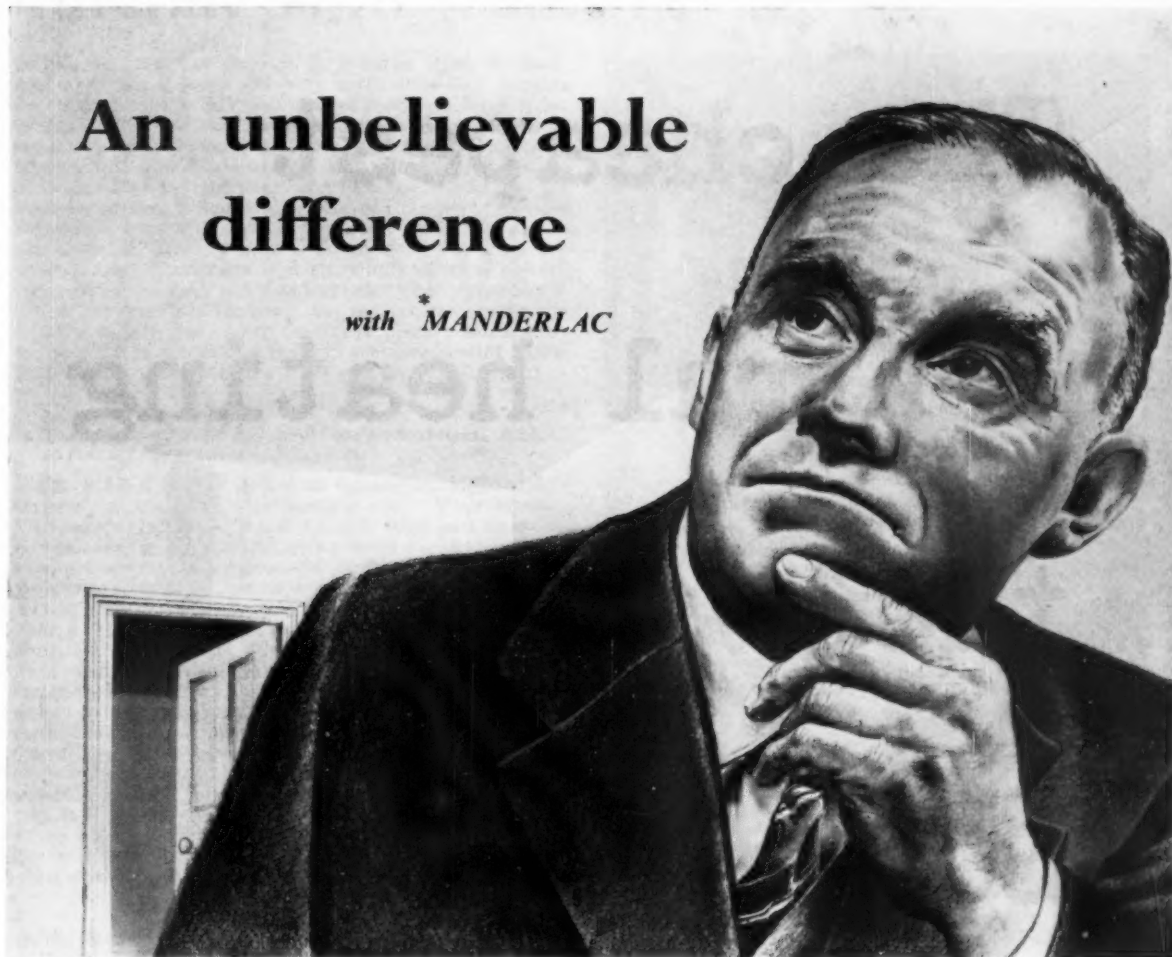
Recommendations are given for treatment of existing old organ cases, to cut out unnecessary and obstructive ornamentation yet preserving good period characteristics. These characteristics, as seen in fifteenth- and sixteenth-century and other period cases, are illustrated by sketches which, in their distorted perspective, have something of the appearance of primitives.

- **Trees for Our Towns.** W. Barbara Acworth, M.A., L.R.I.B.A., for the Metropolitan Public Gardens Association, 58 Denison House, 296 Vauxhall Bridge Road, London, S.W.1. Price 1s., plus postage.

Another excellent booklet to join the recent Ministry publication on the reference shelves. It is small, slim, succinct and full of very good advice on the planting and care of trees, including pruning for shape, tree roots and buildings and trees for a wide range of positions. These

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A Manders case history



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The cheapest central heating there is - SOLID FUEL



Cheapest Running Costs. A new generation of house hunters is insisting on central heating. They regard it as just as much of an essential as the water supply. It's as well then that *solid fuel* central heating has such rockbottom running costs. Look at the figures on the right: *no other fuel* can compare for cheapness with solid fuel.

Low Capital Costs. It's not an expensive business installing a *solid fuel* central heating system. In fact, the recently developed small-pipe system, so perfect for smaller or medium-sized houses or bungalows, is of such low capital cost that central heating can now be put within the reach of a much larger section of the public than ever before. Special 5-year credit facilities are now available.

For Architects. "Central Heating for Houses." This 120-page survey of solid fuel central heating outlines the various systems available, from the open-fire-and-back-boiler to the latest small-pipe system. Copies 2/6 each. Write to the Coal Utilisation Council, 3 Upper Belgrave Street, London, S.W.1, for this booklet or any of the following publications:

List of Approved Domestic Solid Fuel Appliances, Warmer Homes with Solid Fuel, Fuel Stores for Houses and Flats, Building for Warmth—all free; and for 1/6—Correct Fixing of Domestic Solid Fuel Appliances.



Compare the Running Costs! This table shows typical comparative costs for different fuels. These have been calculated for a 3 bedroom house of some 1000—1,200 square feet and are those of an *average* week's heating and hot water supply during the 30-week heating season. Fuel prices vary, of course, and local costs can easily be calculated from those given. If you would like the data on which these figures are based, write to the Coal Utilisation Council, 3 Upper Belgrave Street, London, S.W.1.

COKE Sectional Boiler	£9 ton	21/-
ANTHRACITE Gravity Feed Boiler	£12 ton	20/-
GAS	1/5d therm	33/1d*
ELECTRICITY	1d unit	45/*d
OIL Sectional Boiler Conversion	1/5d gallon	31/5d
*Gas and Electricity costs exclude Standing Charge		

Information Digest (continued)

include, in groups or sections, large forest types, medium-size trees, small trees and very small trees—all suitable for roadside use. For open spaces there are large trees, medium-size trees, small trees and very small trees, all in the last group differing from those of the same description for roadside use. Sections also deal with weeping trees—in ten species—upright trees (of which the *Prunus* gets no more credit than it deserves), contorted trees (three species) and finally trees little used in towns, of which five names are given in eight varieties. To most of the trees are devoted short descriptions which give indications of appearance, flower (if any) and disadvantages when appropriate. Horse chestnuts are included, but not recommending the fruiting variety, but rather the "flore pleno", which does not seed. It is noteworthy that not one tree bearing edible fruit is included. There are a few excellent photographs.

● **Your Factory: Why you should use an Architect.** R.I.B.A., 66 Portland Place, London, W.1. Free.

The R.I.B.A. Public Relations Committee initiated this series some time ago, commencing with "Your House: Why, etc." It states boldly and clearly what part an architect can play in the creation of economic factory construction, not only in the structure but in the planning of space. It is also forthright in its opposition to the "package service", for it says of the architect "his is no packaged 'take-it-or-leave-it' service. It is direct and personal and, above all, independent". Elevational appearance is scarcely mentioned, the only reference being to the provision for a "good-looking" factory, but the emphasis is laid much more on the efficiency from training, experience and method which result from the employment of an architect. Copies can be obtained on request. Allied societies and chapters will no doubt be helping to distribute this useful pamphlet to industrial interests. If it falls short in any way, it is in the absence of any reference to small additions which are so often the point of introduction of an architect to industrial work and where his influence can be felt often with greater impact than in the design of a vast shed.

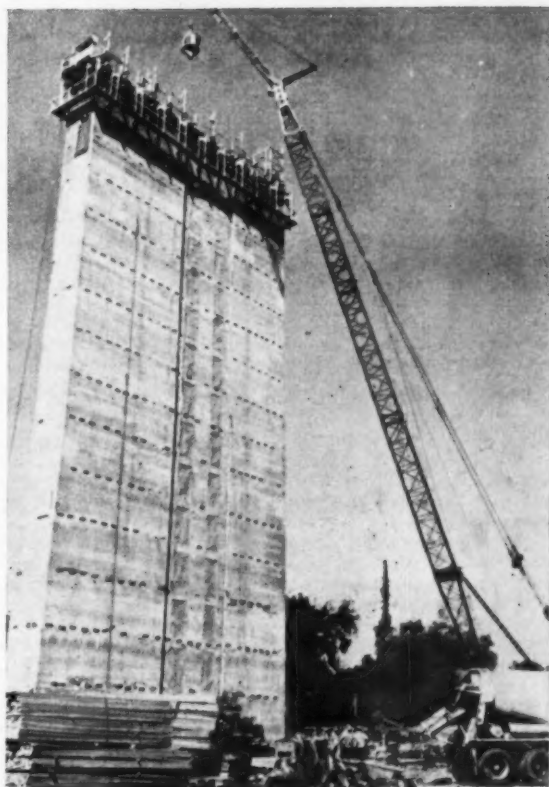
● **The Modular Catalogue, Sheets 41, 42, 43 and 44.** The Modular Society Ltd., 22 Buckingham Street, London, W.C.2.

These sheets are concerned with concrete construction. Sheet No. 41, Concrete Buildings, shows the assembly of Dow-Mac (Products) Ltd., Tallington, Stamford, Lincs. The walls consist of column units and wall units, both 8in thick, arranged to receive windows and doors, the planning and bay module being 7ft, with low pitched trusses and interlocking roofing slabs. Sheet No. 42 shows the same firm's framed concrete structure with flat pitch beams and purlins. Sheet No. 43 is a variant of No. 41 for flat roof construction using prestressed beams. Sheet No. 44 shows the construction of E. C. Gransden & Co. Ltd., Upchurch, Kent. This is a concrete walling system using either bay-length or storey-height panels or such combination of horizontal and vertical panels as is suitable. The panels have dense concrete faces but cellular concrete cores.

TRADE ASSOCIATION PUBLICATIONS

● **Central Heating for Houses.** Coal Utilisation Council, 3 Upper Belgrave Street, London, W.1. Price 2s. 6d., plus postage.

Written for the layman, this is a book which enables him to understand the principles and alternative methods of warming houses by hot-water central heating. It is, therefore, not highly technical, yet goes beyond the elements of the subject. Chapter 1 defines central heating and states the advantages of partial and full heating. Chapter 2 is on boiler types, but includes back-boilers and hot-air systems. Chapter 3 discusses radiators—their types and



This building in Palo Alto, California, is being constructed to a Swedish system around a 15-storey core housing all the service facilities of the 101-apartment structure. The core is built with the aid of a "slipform" which moves upwards one inch every five minutes. A crane is erected on top of the finished core to hoist the remaining materials into place

possible positions. Tanks and pipes are considered in Chapter 4, and accessories, such as outside thermostats and pumps, in Chapter 5. In Chapter 6 the various hot-water systems are examined, while insulation—mainly of heating installation, but partly of the house—is discussed in Chapter 7. The importance of giving proper thought to flue design and protection is stressed in Chapter 8. Other chapters deal with performance, fuel, installation costs, operating costs and, lastly, choice of a system. The last of these recapitulates earlier remarks on capital and running costs, but, in addition, refers to smoke control, maintenance, smell and warmth in winter. In the chapter on operating costs, coke, hand-fired, has 60 per cent efficiency, while anthracite, gravity-fed, has 75 per cent efficiency. Translated into cash, coke, at £9 per ton, cost 33s 6d per 30 therms, while anthracite, at £12 per ton, costs only 29s 7d per 30 therms. The greater efficiency of the gravity-fed boiler probably has some bearing on this. Costs are also given for oil, gas and electricity, but none is so cheap as solid fuel. Five appendices deal with calculation of heat losses, air changes, radiator sizes, domestic hot water and boiler size.

● **Hardwoods for Structural Purposes; Static Bending Tests on Keruing and Meranti; Static Bending Tests on Utile.** Timber Development Association Ltd., 21 College Hill, London, E.C.4. Price 3s. 6d. each.

Three useful studies are published and put on record, information which designers of timber structures will find

Information Digest (continued)

valuable. The first deals with 34 woods, all of which are imported, although not all are of tropical or sub-tropical origin. Each wood has its qualities presented in tabular form, giving weight (at 12 per cent moisture content), bending, compression and shear strengths, elastic modules, natural durability, resistance to impregnation, woodworking properties and bending properties. Marketed sizes are then tabulated, in sectional sizes and lengths. Import details between 1953 and 1955 are then given, indicating the growth of demands.

The other two, on static bending tests, are highly technical and unsuitable for summarizing. They give deflection results and effect of varying moisture content on strengths, among other data. These are for structural designers.

- **Vitreous Enamel in Architecture.** Vitreous Enamel Development Council, 28 Welbeck Street, London, W.1.

The brochure now to hand is large and colourful and very fully illustrated, partly with examples from the U.S. It carries also some very clear working details in its third section, various arrangements of panels being indicated, some having vitreous enamelled sheet steel or cast iron external faces in combination with a variety of insulating cores and sheet metal, plaster or other internal face.

An advisory service is available for architects and at the same time the Council are imposing on their members standards of manufacture to ensure satisfactory service. A specification for curtain walling is now being considered. This, one hopes, will include waterproofing panel joints mechanically so as not to rely on caulking, as indicated on one of the detail drawings.

The Introduction describes vitreous enamel as glass fused at high temperatures on steel, cast iron, aluminium or copper. It is claimed to be unaffected by weather or erosion factors. The weight can be as low as 3lb per sq ft. It can be formed in many shapes as for cills, rain-water goods and other compound shapes, including pressed or ribbed panels.

- **Ceramic Glazed Fireclay Sanitary Ware.** The British Sanitary Fireclay Association, 57 Great George Street, Leeds.

This is another newcomer to this column. The brochure carries illustrations of the latest ideas in the designs of lavatory basins, washing troughs, sinks, tubs and sanitary ware. "Nine good reasons" are given for the choice of fireclay, these being strength (freedom from cracking irrespective of extremes of water temperature), durability, appearance, being variety of design and range of colours, weight, being the heaviest of materials used for such goods, quality, being fine finishes now available following technical advances in the last ten years, workmanship, healthfulness which refers to modernization of sanitary installations, economy, based on permanence and price which is relatively lower than prior to modernization of plant and methods.

There is a short account of the development of ceramic glazed fireclay sanitary ware. The earliest example of ceramic ware cited is a glazed terra-cotta slipper bath found in the Palace of Minos at Knossos in Crete, dated about 1,700 B.C. Fireclay is older than brick clays and permits smoother working. It is obtained from deeper strata than for bricks and in fact normally lies under coal measures. The ware is made by pouring the fireclay into plaster of paris moulds, after much refining by grinding. The mould extracts moisture from the poured fireclay which, when dry, is coated with the glaze, the whole being fired at about 1,200°C. This is a carefully controlled process, fully recorded at all stages to ensure good quality products. Some of the modern designs were the result of demands from outside the industry but which roused the interest of the specialist and resulted, by co-operation, in attractive shapes performing the required functions with complete success.

TRADE PUBLICATIONS

- **5th Ingredient for Concrete.** Hydrol Cement Waterproofers Ltd. 147 Bollo Bridge Road, London, W.3.

As a question in a "quiz" programme, this title should be productive of curious answers. Water, cement, sand, ballast—and what! One answer would, of course, be air, but the makers of Hydrol argue that their materials have much better claim to attention. There are, in fact, six varieties of Hydrol, in five colours (allowing white as one), but these do not stain in use. Yellow Hydrol is an integral, highly soluble paste which can be diluted with water or added to the other concrete ingredients in the drum. It has a lubricating and void sealing action, but does not affect normal setting, hardening or maturing time of the concrete. Green Hydrol, however—which, again, is non-staining—is a "rapid hardener", but does not accelerate initial set, although claimed to increase ultimate strength in addition to acting as a waterproofing agent. It is also used for frost resistance. Hydrol D.B. 29 and D.B. 30 are both silicone solutions to be used as water repellents on external wall faces. D.B. 29 has a hydrocarbon solvent with a flash point of 107 deg and is cheaper than D.B. 30, which is a silicate resin, non-flammable and particularly suitable for limestones. Buff Hydrol is a fast-setting, integral waterproofing agent for cement slurry and renderings. White Hydrol is a concrete floor hardener, for old or new surfaces. Other products are Hy-Buc bonding coat for renderings and plaster, Hy-Plam mortar plasticiser which resists frost action, and Blue Hydrol improves adhesion of renderings, increases rate of hardening, and is an integral waterproofer.

This publication is one of the few to conform to the new B.S. 1311. The size, 11in by 8½in, seems clumsy compared with the usual and now outmoded quarto sheet, but, for the sake of international uniformity, architects will no doubt be prepared to increase the heights of their shelves to 12in to receive the new catalogues. The catalogue under consideration has index tabs for quick reference but, while these are always welcome, they extend beyond the B.S. width, so the catalogue could not lie vertically in a B.S. catalogue drawer. Similarly, on a shelf designed to take B.S. catalogues, this one would be odd man out—unless others follow its example. The catalogue, beside the merit of conforming to recommended practice, is commendably clear in the presentation of the essential information on each product.

CATALOGUES

- **Ventilation.** Wanson Co. Ltd., 7 Elstree Way, Boreham Wood, Herts.

This company has a range of direct-fired industrial air heaters named Thermobloc. These contain oil-burning, coal or gas heaters with a ventilated casing acting as air ducting, which is connected to high-level outlet grilles, the air being boosted by fan-flues as necessary. Thermostatic control is incorporated and, as no water tubes are used, heat is delivered very rapidly. Outputs range from 200,000 to 2,700,000 B.Th.U. and can be employed both for space heating and for industrial drying. While normally resting on the floor it is possible to suspend the units, so releasing production area.

- **Racking.** Williams & Dickinson (London) Ltd., 27 John Adam Street, Adelphi, London, W.C.2.

The range of "Talisman" bar racks, which are also suitable as tube racks, has been extended. They are self-supporting in that they have spreader feet and consist of hurdle-like units which can be spaced as required. Indications are given in the leaflet as to the loads each type can carry safely.

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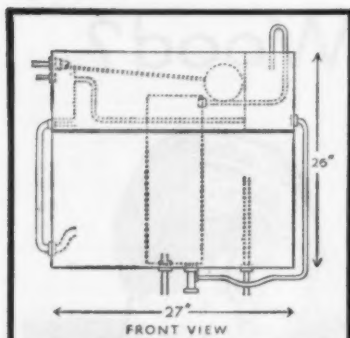
Bowstring truss, 80 ft span, under load test at T.D.A. Research Laboratories.

This truss is a typical example of advanced design and construction in 'new era' wood. The 'tied arch' provides wide spans and is a low-cost, maintenance-free roof structure. It has good fire endurance. Spans of up to 180 ft have been designed by T.D.A.

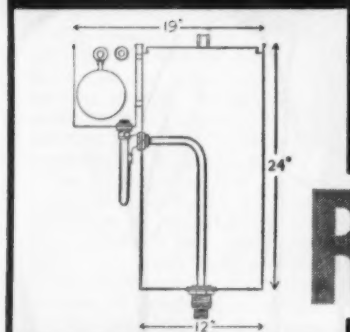
You should know more about today's wood: properties and design data on timbers and plywoods; the use of plywood girders and box beams; glued laminated beams, portals and arches; framed girders and roof trusses; trussed purlins; shell roofs; bridges; farm buildings; flooring; cladding; curtain walling; thermal insulation; finishes; preservation; fire endurance; mechanical and electronic testing.

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Industrial Notes

● The Air Ministry has ordered an electronic computer, valued at £190,000, to handle the payroll calculations of the 80,000 civilians they employ throughout the U.K. The machine, on order from E.M.I. Electronics Ltd., is an Emidec 1100, which will automatically prepare pay sheets, coin and note lists for cash wages, cheques and bank transfer slips and pay slips. It is scheduled for delivery by the end of 1960.

● The Coal Utilisation Council has formed a joint service committee, under the chairmanship of Mr. D. O. Eden, to cover Wellingborough and Rushden, Northants. The secretary is Mr. C. W. Avis, of 2/8 Park Road, Wellingborough.

● The London office of H. Newsum, Sons & Co. Ltd. has been moved to a new address at Mellin's House, 56-60 Hallam Street, London, W.1 (Langham 8423).

● The National Caravan Council, which celebrates its twenty-first anniversary in 1960, is to hold a Convention at Folkestone, Kent, from March 16 to 18.

● Powell Duffryn Ltd. has acquired the whole of the share capital of Janitor Boilers Ltd. The Janitor offices and works will continue to be situated at Vale Road, Camberley, Surrey, but a new showroom for Janitor equipment has recently been opened at 19 Berkeley Street, London,

W.1. Under its new ownership, the company's plans for the development of heating and ventilation appliances will be accelerated and co-ordinated with Powell Duffryn's growing activities in this field.

● Mr. L. G. Booth, M.A., PH.D., D.I.C., has been appointed by H. Newsum, Sons & Co. Ltd., of Lincoln, as their structural engineering consultant.

● Following a recent decision of the M.O.W. to pass over to the industry the responsibility for its annual exhibitions of building plant, representatives of the National Federation of Building Trades' Employers and of the Federation of Manufacturers of Contractors' Plant met in London recently and decided to continue the series of exhibitions under their joint direction and control. The date and site of the next exhibition will be announced later.

● Multiglass Ltd. have appointed Mr. R. J. Bayliss as a technical representative.

● Taylor Woodrow (Ghana) Ltd. have been awarded a contract by the United Africa Co. Ltd., acting on behalf of Messrs. Heinekens of Rotterdam, for the construction of a brewery which will be on one floor only. For the buildings, use is to be made almost entirely of steel-framed Arcon structures, supplied by Taylor Woodrow (Building Exports) Ltd. They are to be multi-span structures

in the Arcon S-B range, covering an area over 100,000 sq ft. The contract, which is to be completed in 12 months, is valued at over £180,000.

● The Standard Building Department of Sanders & Forster Ltd. has been transferred to a new address at Walton House, Warton Road, London, E.15 (telephone: Maryland 3228).

● Percy Bilton Ltd., civil engineers and building contractors, have moved their headquarters from Park Street, London, W.1, to a new address at Bilton House, 54-58 Uxbridge Road, London, W.5 (telephone: Ealing 7777).

● Hale & Hale (Tipton) Ltd. have paid an interim dividend of 5 per cent on the ordinary shares of the company for the year to August 4, 1959.

● Getalit Ltd., distributors of laminated plastics, have appointed Mr. L. G. Stanley as representative.

● The premises of the A.E.I. Lamp and Lighting Co. Ltd. at Princes Dock Street, Hull, have been closed. The Leeds office at 46 Wellington Street, Leeds is now able to deal with all communications in the Hull area.

● The plastics department of Dexion Ltd., makers of Undulite reinforced plastics sheeting, has moved to a new address at Maylands Avenue, Hemel Hempstead, Herts. The manager is Mr. Cecil Waxman.

● The new Remploy warehouse at Swindon, which was recently opened by the Hon. Richard Wood, Parliamentary Secretary to the Ministry of Labour, has a floor area of 100,000 sq ft and serves the entire southern half of England. Apart from some of the offices and the canteen, it is a one-storey building and has thirteen loading bays. Architects: E. Norman Bailey & Partners. Main contractors: Tersons Ltd.

● The East Midlands Gas Board has converted a building in Derby into a Housing Centre in order to demonstrate gas space and water-heating systems available to householders. Recently introduced kitchen appliances are also on view. Costs and installation work involved are shown with the displays. This is the first of a number of such centres which the Gas Board hopes to build in different parts of Great Britain. The Derby centre was designed by Mr. S. Shorthouse, the Board's Display and Exhibitions Officer.

● The regional headquarters office of A.E.I. Lamp & Lighting Co. Ltd. at Waterloo Street, Glasgow, has moved to 53 Pitt Street, Glasgow (telephone: City 6585).

The Operations Room at Fanum House, London, is the nerve centre of the Automobile Association's radio-controlled road and emergency services. The operators occupy map-lined cubicles arranged in step formation round an elliptical staircase. This room, visible from the main reception hall through a curved plate-glass screen, is dominated by the radio control room



NEW PRODUCTS

In this feature are reviewed new lines introduced to the building industry for the first time and additions or improvements to existing ones. Any advantages claimed for a product are from information supplied by the manufacturer

New Lighting Fittings (A)

This company is marketing three new lighting fittings for general use. All glassware in these fittings is British made three-ply with a satin opal finish to reduce glare and give an efficient and even distribution of light. There are two pendants with silver or gilt anodized aluminium suspension and a ceiling fitting with no visible metalwork. Pendant U53 (1ft 2in dia.) is suitable for 150/200W. ES pearl lamps; Pendant U54 (1ft 5in dia.) is suitable for 300 GES pearl lamps; and ceiling fitting U52 (1ft 2in dia.) takes the same lamps as fitting U53. Illustrations are: U54 (top) and U52 (bottom). Respective prices (including purchase tax) are £3 1s 9d, £4 19s 9d and £7 9s 11d.

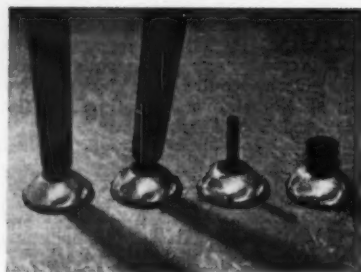
Troughton & Young (Lighting) Ltd., 143 Knightsbridge, London, S.W.1. Kensington 3444.

Readers' Information Service, Ref. A. Date 16/9/59.

★

New Paint Remover

Before Metalife Liquid Metal is applied to iron and steel, all old paint must be removed, so that the Metalife comes into direct contact with the iron and steel it is to protect. The manufacturers have, therefore, produced a special paint remover known as Metastrip Deep Penetration Paint Remover. The new product is based primarily on a solvent which is claimed to be the most powerful for removing oil-bound paints; it also contains special solvents to assist in the removal of cellulose paints, french polish, stoving enamels, etc. The evaporation of the solvents is retarded by the inclusion of a special material so that they stay longer in contact with the paint, thus increasing their effectiveness. It is claimed that the remover is non-inflammable and will not run on a vertical surface. Wetting and emulsifying agents are added to ensure that the surface may



be washed down with water after use, that no waxy residue is left to spoil adhesion, and that the water also assists in removing the paint. The remover is free from acids and alkalis which would tend to corrode iron and steel. Price £3 8s 6d per gall.

Southern Metalife Ltd., Station Square, Harrogate, Yorkshire.

Readers' Information Service, Ref. B. Date 16/9/59.

★

New Circular Saw-bench

The latest addition to this manufacturer's range of woodworking machinery is Utility Circular Saw-bench, type ARR, which has been introduced for general purpose duties. The machine is arranged to receive saws of 26in or 30in dia., and the saw spindle is mounted in dust-proof, ball-bearing housings. The table-top is 48in long by 24in wide, and the ripping fence, which can be turned over for cross-cutting work, will open to admit 11½in. The fence shaft carries a roller to ease the feeding of long timbers, and the top and bottom saw guards conform fully to the requirements of the Factories' Acts. Both the table-top and the frame are made of steel. Drives available include: electric, fast-and-loose pulleys, single flat pulley, and single vee pulley. An important innovation on the flat-belt-driven model is a three-point suspension which enables the machine to be transported by a tractor equipped with three-point linkage. This feature will be particularly useful in forestry operations. The makers consider the new saw-bench to be suitable for ripping, cross-cutting and salvage operations in sawmills, estate yards and woodland operations; for timber and builders' merchants; and for preparing woodwork on building sites and shuttering on constructional projects.

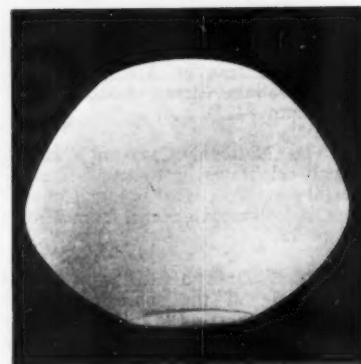
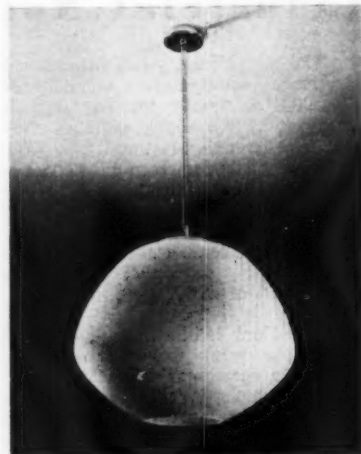
Stenners of Tiverton Ltd., Tiverton, Devon. Tiverton 2202.

Readers' Information Service, Ref. C. Date 16/9/59.

★

New Furniture Foot (D)

A new type of 1½in furniture foot has been produced to meet a demand for a low-cost fitting of attractive appearance. The Junior Kushon, as it is known, has a universal-joint-type action, and is one of one-piece construction with a solid lacquered brass finish. It takes about half a minute



A

to assemble a set of four, and no screws are required. When fitted to coffee tables and other types of furniture, it will take a set according to the angle of the leg. It has also been designed with a special fitting for use with tubular furniture.

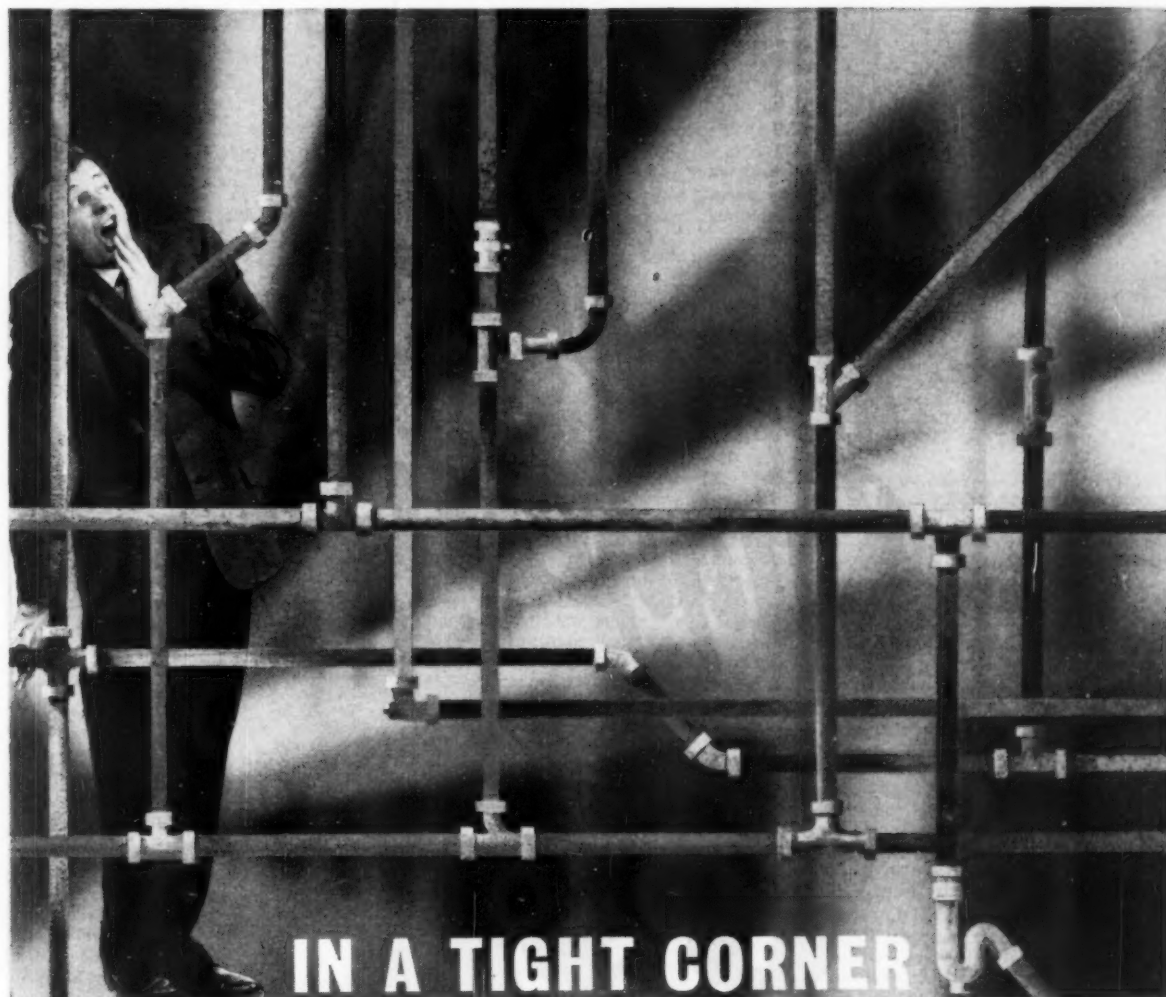
Creators Ltd., Sheerwater, Woking, Surrey. Woking 5333.

Readers' Information Service, Ref. D. Date 16/9/59.

★

Lead Bricks for Atomic Shielding

A new lead brick has been produced, by a special pressure moulding process, for use in shielding personnel against gamma, beta and alpha rays. This brick has been accepted by the U.K.A.E.A. Harwell as a standard for all future requirements. They are claimed to ensure the greatest density and freedom from porosity and inclusions within the fine limits permissible under Harwell's very rigid specification. Harwell have, in fact, signed a two-year contract with the manufacturers for the supply of these bricks which are adaptable for portable and permanent lead shielding, for both commercial and medical use. They are produced in 2in and 4in thicknesses in the form of standard, corner, top and bottom bricks, and also half or even quarter bricks.



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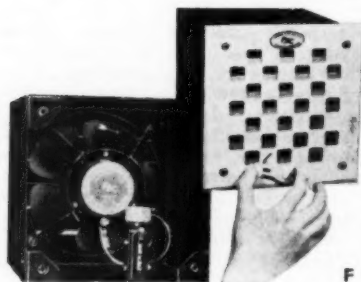
which can be built up into a complete surround, by virtue of their interlocking nature, to give the maximum thickness at any point of 2in or 4in., or multiples thereof.

*British Lead Mills Ltd., Stornoway House, Cleveland Row, London, S.W.1.
Readers' Information Service,
Ref. E. Date 16/9/59.*



New Wall Fan (F)

The Fenton, Byrn Wall Fan is an axial-flow model, driven by a fractional horse-power electric motor and housed in a steel box. It is considered suitable for use in kitchens, laundries, restaurants and hospitals; also for installation where alterations are being made, or to supplement existing ventilation. A special light-proof attachment is available for use in photographic dark-rooms. The end



F

of the box, which faces inwards, is covered by a metal grille, whilst the outside is protected by metal louvres.

The fan is placed in a hole pierced in the external wall with the louvres on the outside. The grille, which is detachable, overlaps the main unit, so that cementing or replastering is concealed and a neat flush fitting is possible. Electrical connections are made through holes at the top or bottom of the box. Spacing pieces are available for extending the fan-case in order to compensate for exceptional wall thickness. Closeable grilles may be supplied with a sliding lever controllable by hand or cord. A trip-switch mechanism can also be fitted to start and stop the fan motor as the grille opens and closes. The interior grille is usually supplied stove-enamelled cream, but can be finished to match any colour scheme. The casing is protected by special rubber paint against rust and corrosion. Four fan sizes are available: 6, 9, 12 and 15in; there is a light duty 12in model as well as four heavy duty models, and also two 15in fans. All fans are available for use on either single-phase 50 cycles A.C. or three-phase 50 cycles A.C. supplies.

Respective air displacements of the four sizes are 115, 300, 400, and 1,800 c.f.m., and overall measurements are: 7½in by 7½in by 11in deep, 9½in by 9½in by 11in deep, 12½in by 12½in by 12in deep, and 15½ by 15½in by 15in deep.

Fenton, Byrn & Co. Ltd., Air-Flow Works, Berrylands Road, Surbiton.

*Readers' Information Service,
Ref. F. Date 16/9/59.*



Large Rotary Pumps (G)

Three new large capacity rotary models are the latest additions to the Speedivac range of pumps. They have been designed for the industrial user but will also be found to be suitable for the larger research, or pilot, project. The new models are the ISC 900 (illustration), ISC 1500 and ISC 3000, having respective displacement of 30, 50 and 100 cu ft per minute. The ISC 900 is the largest of the Speedivac pumps employing the rotary vane principle, whilst the other two newcomers are rotary piston pumps. All are single stage models with an ultimate vacuum of 0.01mm Hg operating without gas ballast. However, where a two-stage performance is required, they can be backed by one of the smaller Speedivac pumps which is mounted on the same baseplate to provide a two-stage combination capable of a vacuum of better than 0.001mm Hg. By using an interstage water-cooled condenser, these pump combinations can handle considerable quantities of water vapour.

Edwards High Vacuum Ltd., Manor Royal, Crawley, Sussex.

*Readers' Information Service,
Ref. G. Date 16/9/59.*

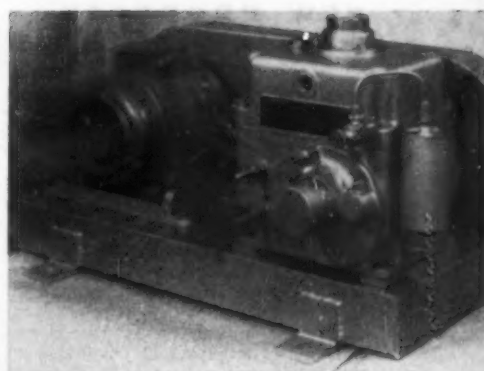


Multi-purpose Dexion Grid (H)

A new multi-purpose grid has been produced by these manufacturers of slotted angle. The new grid can be used to help in the construction of a wide variety of items ranging from industrial platforms and mobile stairs to car ramps and trolleys. It is available in a standard width of 9in and in standard lengths of 4ft 6in and 6ft only, but non-standard lengths in multiples of 1½in can be supplied in minimum quantities of twelve. The grid is cheaper than most standard floor grids and can be used with Dexion slotted angle structures. The grids can be quickly bolted together with fixing plates and standard Dexion bolts and nuts. Prices: 4ft 6in lengths: 18s 9d, 18s and 17s 8d; 6ft lengths: 25s, 24s and 23s 6d (in both cases the prices refer respectively to quantities of up to one gross, from one to three gross, and over three gross).

Dexion Ltd., Maygrove Road, London, N.W.6.

*Readers' Information Service,
Ref. H. Date 16/9/59.*



G

Additional Lighting Fittings

Additions have been made to the New Range of lighting fittings which were originally introduced to meet the needs of commercial and industrial installations where a high degree of standardization of components was desired. These newcomers are a variety of 8ft fittings constructed from single-piece channels, and they have the advantage that the reflectors are also unbroken in length. To simplify installation and servicing there is only one positive locking position on each reflector. One-lamp or two-lamp patterns are available, and in the normal New Range manner these become industrial reflector fittings, either closed or open-top, closed end or open end, by the addition of Permawhite finished standard components. R.D.C. retractable lamp-holders are fitted and the instant-start control gear is claimed to be both efficient and reliable. The new eight-foot fittings can be attached to New Line lighting trunking.

*Crompton Parkinson Ltd., Crompton House, Aldwych, London, W.C.2.
Chancery 3333.*

*Readers' Information Service,
Ref. I. Date 16/9/59.*



Multi-purpose Vehicle Modified Tipper

The Bonallack blown-discharge bulk container (see New Products of October 8, 1958), which was originally introduced as a detachable



H

NEW PRODUCTS (continued)

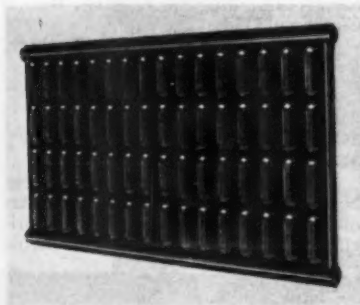
container for fitting inside the body of a slightly modified tipper vehicle, is now available in a modified form. The Mark II version comprises a standard tipper chassis and cab equipped with a detachable tipping or a flat platform body (or both) which may be removed completely from the chassis and replaced by the container, or vice versa. The entire conversion is stated to take as little as eight minutes when suitable lifting gear is employed. The principal advantage of the latest version is that it dispenses with the surplus weight (8cwt) of the body when the vehicle is being used in a bulk container role. In other respects the Mark II model is very similar to the Mark I, in that it has the same system of male and female truncated pyramids, locked by quick release pins, for securing the container, tipper or platform body to the chassis sub-frame and a Wellworthy-Ricardo blower is fitted to permit pressure discharges. Although originally developed for the handling of cement, these vehicles are being successfully used with lime, sugar, flour, dry powders and granulates.

Bonallack & Sons Ltd., Basildon.
Readers' Information Service,
Ref. J. Date 16/9/59.

★

Steel Water Radiators (K)

Five new models have been added to the Dimplex range of pressed steel water radiators. These include 15in high radiators for mounting under low window cills. The range now consists of 18 standard sizes with heating surfaces from five to thirty



K

sq ft. Advantages claimed for these radiators are that they are more efficient, lighter in weight and easier to install than cast iron, have greater thermal efficiency, will not fracture in frosty weather and their smooth rounded finish eliminates dirt traps. They are supplied in one piece with three right-hand threaded sockets, a welded socket complete with screwed-in air-vent and a threaded screwed-in blank plug. They are identical

front and back and can therefore be installed with any combination of inlet and outlet positions, and still have the air vent plug at the top. They can be joined up by brass couplers. Built-in wall brackets are not required for mounting since the brackets supplied can readily be screwed on to walls and partitions. The radiators can either be finished in stove enamel or in primer for site painting. Pressed steel top plates with enclosed ends can now be supplied for all models.

Dimplex Ltd., Millbrook, Southampton, Hants. Southampton 74425.
Readers' Information Service,
Ref. K. Date 16/9/59.

★

Fire Protection with Acoustic Ceiling (L)

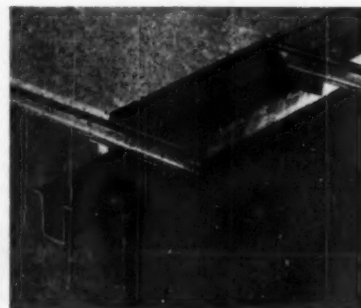
As a result of a test recently carried out by the Fire Research Station at Boreham Wood, it is now possible to install an acoustic ceiling with this company's products which will provide a fire break to meet the most stringent requirements and yet combine high acoustic efficiency with good decorative qualities. The ceiling, constructed from Travertone acoustic tiles suspended below steel beams with non-combustible Armstrong Top Hat suspension system, received a fire rating of over two hours. The test was carried out in accordance with B.S.476. Travertone is a fissured mineral wool acoustic tile available in two sizes, 12in by 12in by ½in and 12in by 24in by ½in and with two edge treatments, square and bevelled.

Armstrong Cork Co. Ltd., Bush House, Aldwych, London, W.C.2.
Readers' Information Service,
Ref. L. Date 16/9/59.

★

Improved Fixing Tool (M)

Certain improvements in design have been made to the DX100 fixing tool (New Products, 19/11/58) whereby new objectives can be achieved by the modified model, the DX100L. These objectives include: (1) Fixings of narrow channel sections onto steel, concrete, or brick, or fixings into narrow grooves, recesses, etc; (2) the introduction of controlled methods of counter-sinking whilst nailing battens or other soft material onto hard material; and (3) the reduction of the residual energy carried by Hilti studs and nails during deliberate misuse of the tool. The theoretical maximum residual force available for free flight is now 18ft/lb which is claimed to be less than one fortieth of similar forces generated by fixing guns, and thus gives even greater safety than before. These improvements in performance have been made possible by four modifications in design, namely: (a) A redesigned base-plate allowing entry into ½in wide channels or recesses. The base also allows close



L



M

fixings for saddles of all types; (b) an extension base plate of neoprene for flat face work; (c) elongated front plungers, allowing accurate counter-sinking to a depth of ¼in; and (d) increased weight of plungers and thus reduction of maximum independent energy carried by studs or nails.

Ucan Development Ltd., 62 Hill Street, Richmond, Surrey.

Readers' Information Service,
Ref. M. Date 16/9/59.

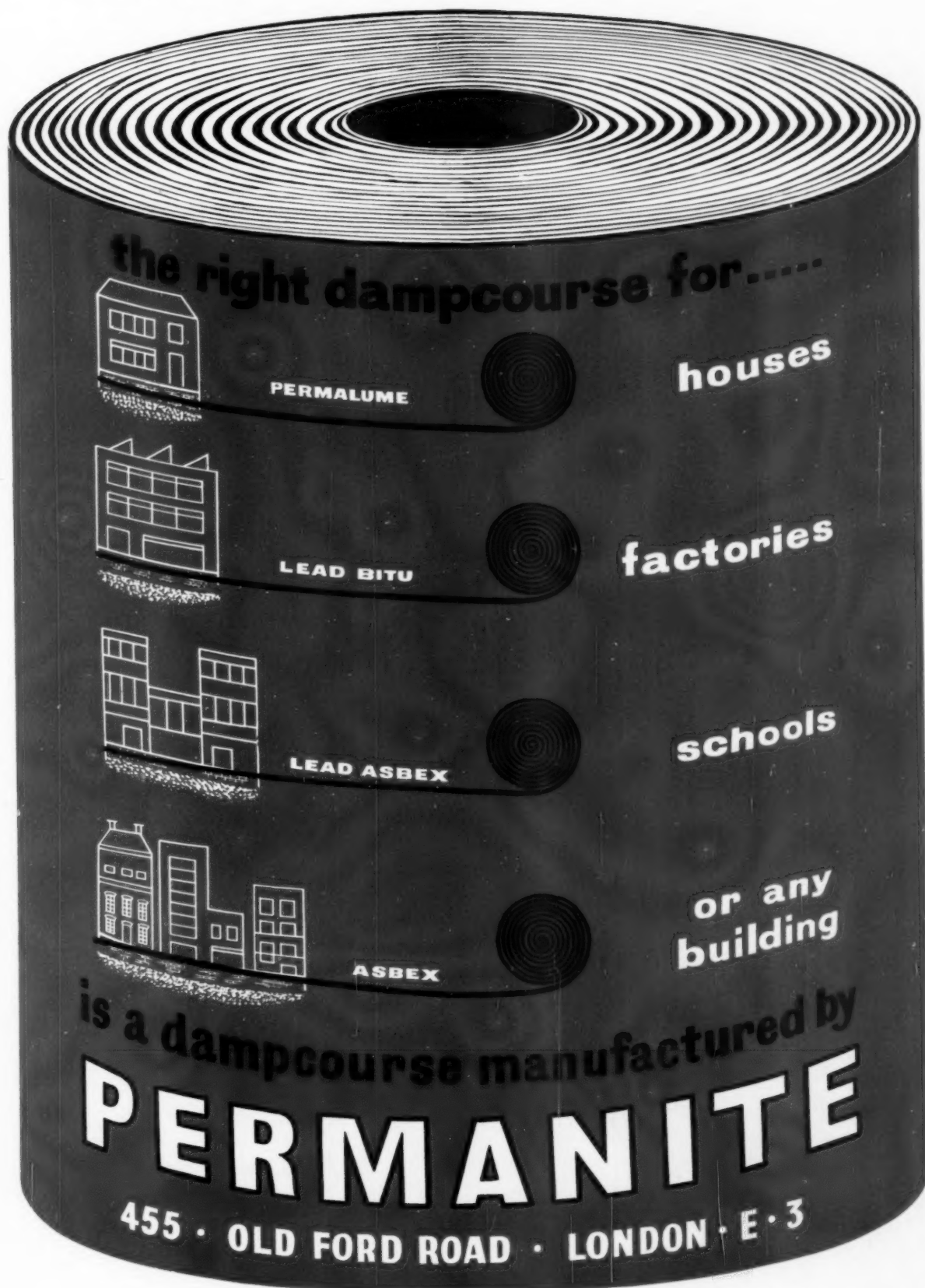
★

Heavy-duty Crane


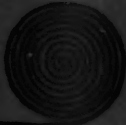
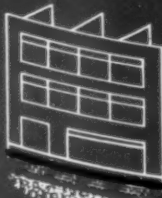


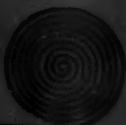

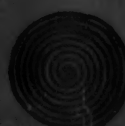
A new heavy-duty crane, known as the N.C.K.-Rapier Pennine, has recently been introduced. Although the machine has been primarily designed for heavy duty, it can, in fact, be quickly converted for dragline, grabcrane and dragshovel duties. By mounting the upper unit and lift crane attachment of the N.C.K.-Rapier 20-ton truck crane on a special long and wide crawler frame, the makers have provided a crawler-mounted crane with a lifting capacity of 19 ton at 10ft radius, with a 30ft pin-jointed boom. This boom can be extended by inserts to a maximum length of 90ft and special jib-boom extensions up to 30ft in length, with five-ton capacities, are available for fitting on main booms up to 70ft in length. Besides the pin-jointed boom, standard equipment on the new Pennine crane includes power controlled boom lowering, power controlled load lowering, a high "A" frame and pendant type boom suspension.

Newton Chambers & Co. Ltd., Thorncliffe, nr. Sheffield.

Readers' Information Service,
Ref. N. Date 16/9/59.



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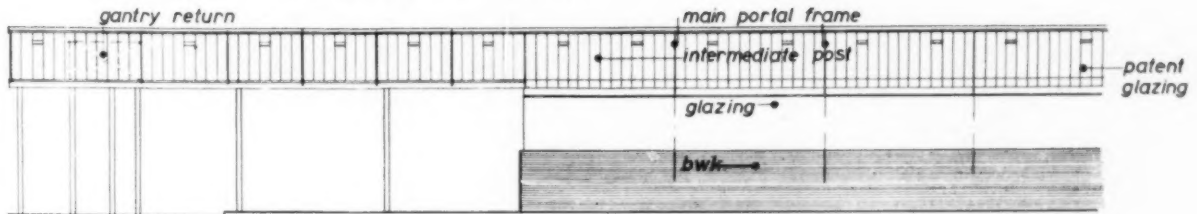


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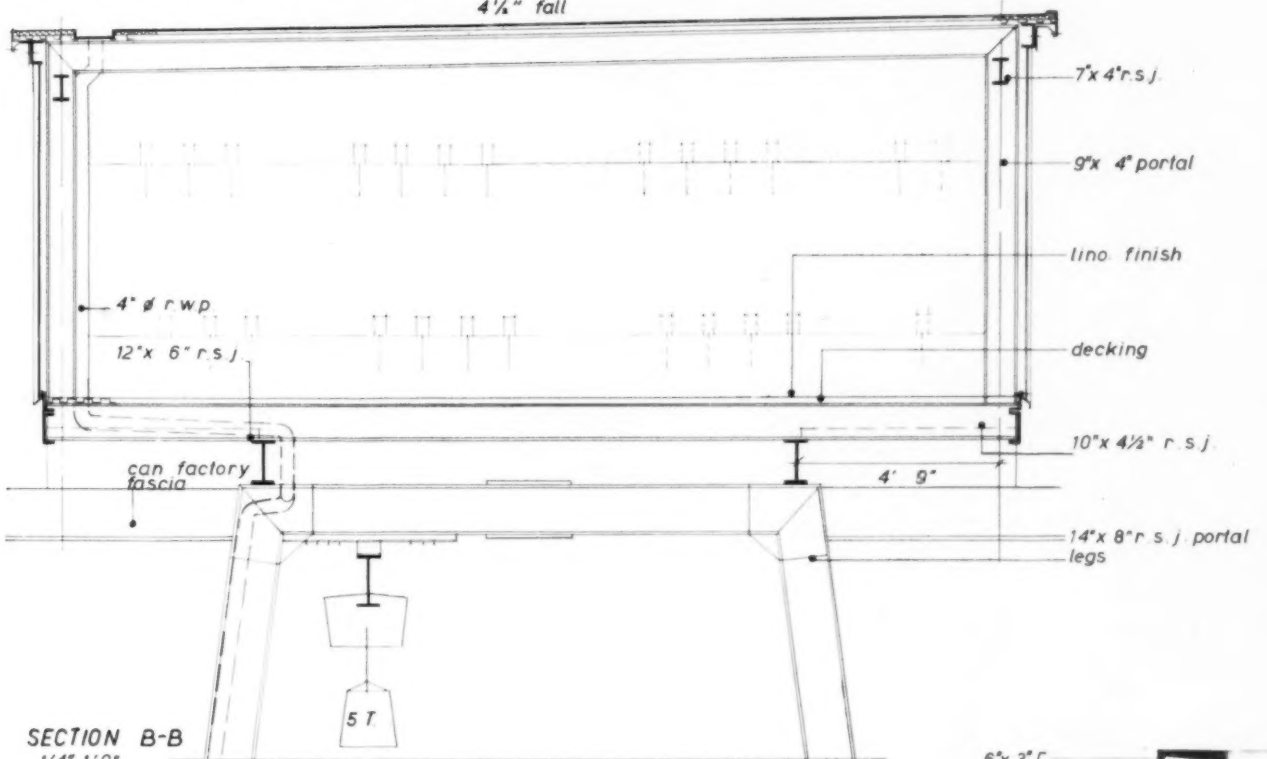
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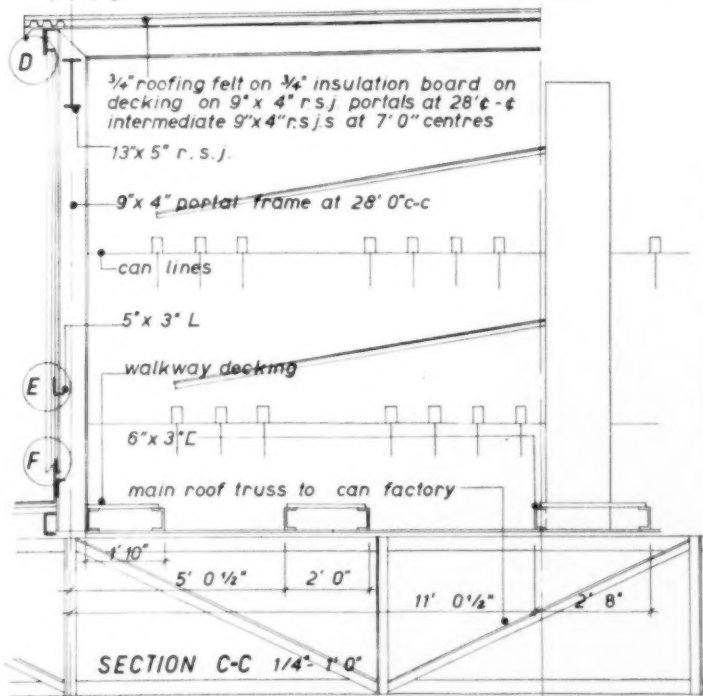


ELEVATION A-A 1/32" = 1' 0"

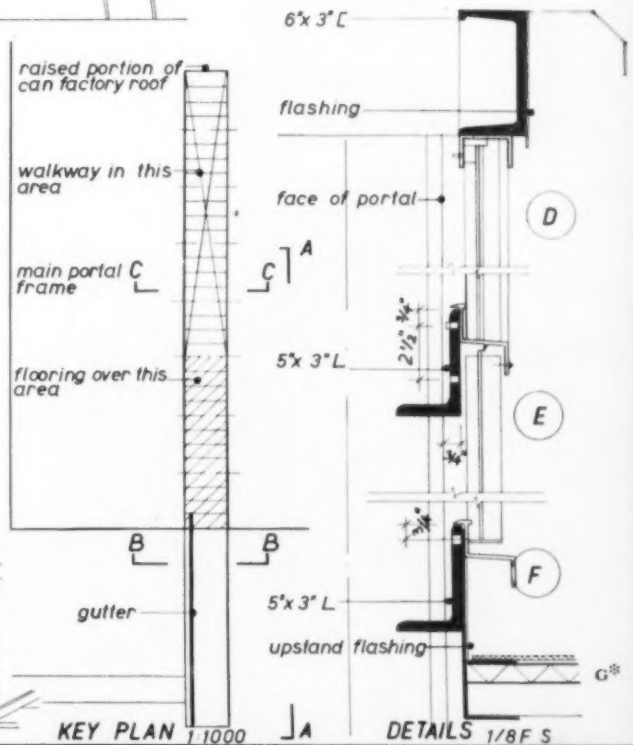
4 1/4" fall



SECTION B-B 1/4" = 1' 0"



SECTION C-C 1/4" = 1' 0"



KEY PLAN 1/1000

DETAILS 1/8" = 1' 0"



This gantry at the Heinz factory at Kitt Green is designed to take cans from the can factory and workshop to the main production building and incidentally to provide storage space for the cans en route. The construction of the two legs varies to provide for future expansion. The eaves and the framework are painted black except for the underside which is white, the inside is also painted white. The remainder is in natural aluminium. Architects : J. Douglass Mathews and Partners. Contractors : A. Monk & Co. Ltd. Photo: Airviews (Manchester) Ltd.



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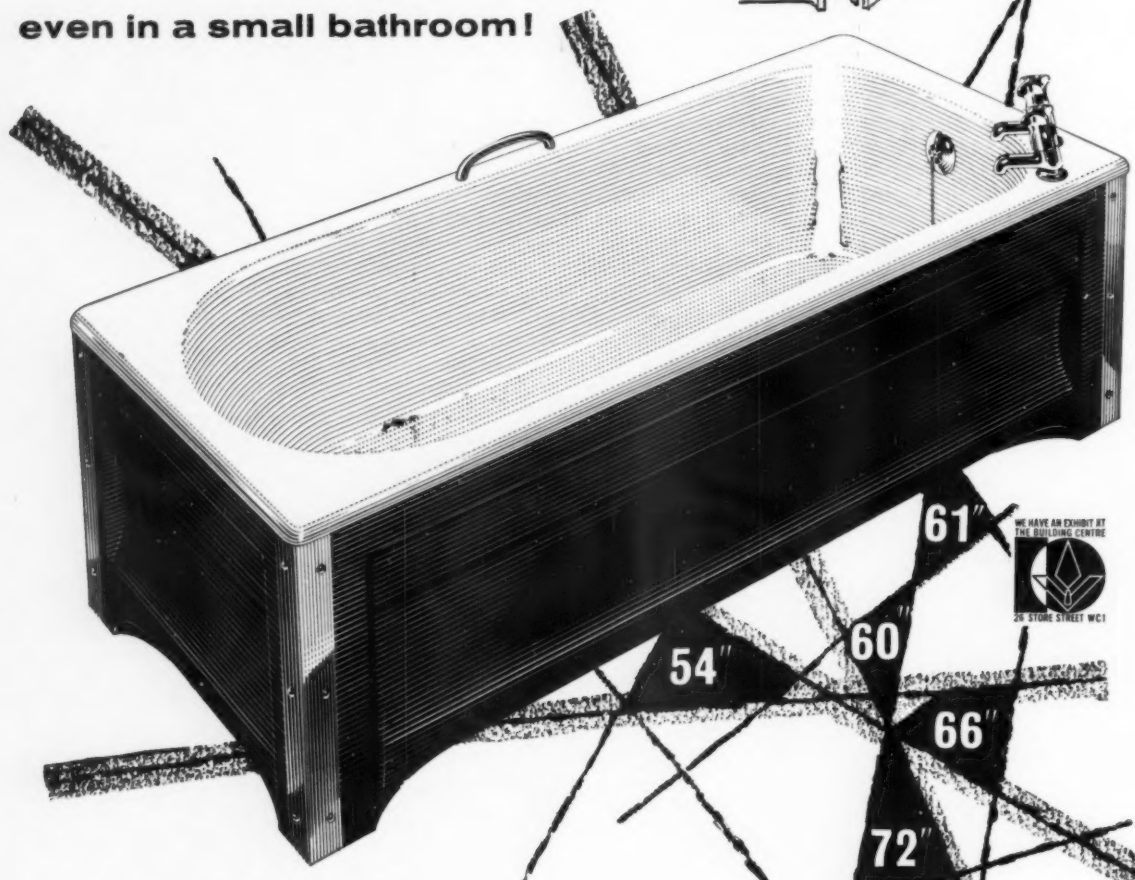
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Notes below give basic data of contracts open under locality and authority which are in a bold type. References indicate: (a) type of work (b) address for application. Where no town is stated in the

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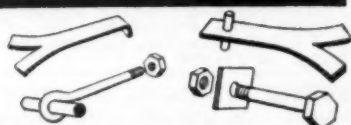
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OPEN BUILDING

BERKS C.C. (a) Erection of a workshop and garage, and alterations to stores at County Stores Building, Commercial Road, Reading. (b) County Architect, Wilton House, Parkside Road, Reading. (c) 2gn. (e) September 30.

BIRMINGHAM. (a) Erection of a factory. (b) Garretts Green. (c) C. Bryant & Son, 65 Whitmore Road, Birmingham.

BRIGHTON B.C. (a) Site preparation and supplying and erection of 44 concrete prefabricated garages at Lower Bevendean estate. (b) Borough Surveyor, Engineer and Planning Officer, 26-30 King's Road, Brighton. (c) 2gn. (e) October 12.

BUCKS C.C. (a) Erection of a pair of staff houses for Wendover House Special School, to cost £5,000 approximately. (b) County Architect, County Offices, Walton Street, Aylesbury. (e) October 12.

CHESTER C.C. (a) Erection of a fire station at Sandbach, to cost approximately £11,500. (b) County Architect, County Hall, Chester. (c) 2gn. (d) September 18.

CHESTERFIELD B.C. (a) Erection of 62 traditional type brick built dwellings on Dunston Hall estate. (b) Borough Engineer and Surveyor, Town Hall. (c) 2gn. (e) September 28.

CORNWALL C.C. (a) Contractors are invited to apply for inclusion in either or both lists for: Works costing £50,000 to £100,000; works costing over £100,000. (b) County Architect, County Hall, Truro. (d) September 30. Particulars should be given of the largest contracts recently carried out for bodies other than the C.C.

COSELEY, STAFFS, U.C. (a) Four type 12 houses and 12 two-storey one-bedroom flats (16 dwellings) at Windsor Road, Parkfield. (b) Joseph C. Roper, Clerk of the Council, Council House, Coseley. (c) 2gn, by cheque, payable U.D.C. (e) September 28.

DARTFORD R.C. (a) 44 dwellings off Brook Road, Swanley. (b) Engineer and Surveyor, Whiteoak, Swanley, Kent.

EAST SUFFOLK C.C. (a) (1) Stoke Ash C.P. School, erection of three classrooms, sanitary accommodation, kitchen and boilerhouse, with some alteration. (b) Applications for inclusion in the selected list to County Architect, County Hall, Ipswich. (d) September 25.

EAST SUFFOLK C.C. (a) Ground-floor extensions to Police Headquarters at Ipswich, involving 640 sq ft comprising parade and recreation room, kitchen and store, and first-floor extensions over existing building of 286 sq ft for clothing store, together with minor works. (c) 2gn. (d) Immediately. (e) September 29.

address it is the same as the locality given in the heading (c) deposit (d) last date of application (e) last date and time for submission of tenders. Full details of contracts marked * are given in the advertisement section.



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EDINBURGH. (a) All trades in one undertaking or separate trades for the third development of Ainsley Park Secondary School. (1) Mason; (2) joiner; (3) plumber; (4) plasterer and cement; (5) glazier; (6) smith; (7) roof tiler and roughcast; (8) tarmacadam, paving and asphalt roofing; (9) tile and terrazzo; (10) pointer. (b) City Architect, City Chambers. (d) September 25. (e) October 28.

EIRE—CORK M.H.B. (a) Erection and completion of new admission hospital at Our Lady's Hospital, Lee Road, Cork, for Cork Mental Hospital Board. (b) J. R. Boyd Barrett, 5 Camden Place, Cork. (c) 10gn. (e) October 2.

EIRE—CORK M.H.B. (a) (1) Mechanical installation at the above hospital. (2) Electrical installation at the above hospital. (b) Messrs. Delap & Waller, 63 Lower Baggot Street, Dublin. (c) 10gn per set. (e) October 2.

EIRE—CORK V.E.C. (a) Erection and completion of an extension to the Technical School, Passage West, Co. Cork, for County Cork Vocational Education Committee. (b) Mr. E. P. O'Flynn, Trinity Chambers, 60 South Mall, Cork. (c) £15. (e) September 16.

HANTS C.C. (a) Erection of Aldershot St. Michael's C.E. (Controlled) Secondary School in traditional construction, floor area 20,000 sq ft. (b) County Architect, The Castle, Winchester. (d) September 30. (e) October 6.

HEYWOOD B.C. (a) Erection of a mortuary at Hind Hill Street. (b) Borough Engineer and Surveyor's Department, Municipal Buildings, Heywood. (c) 2gn. (e) October 8.

LONG EATON U.C. (a) 61 dwellings and alternatively 159 dwellings, at Draycott Road, Sawley housing scheme, No. 21h. (b) Engineer and Surveyor, Town Hall, Long Eaton. (c) 2gn. (e) October 8.

NORTHAMPTON B.C. (a) Erection of 21 bungalows at the Priory, Billing Road East, Northampton. (b) Borough Architect, Guildhall. (c) 2gn. (d) Immediately. (e) October 19.

PLYMOUTH C.C. (a) (1) Erection of 26 traditional houses, type "A", at Southway estate; (2) erection of a primary school at West Hoe. (b) City Architect, Seymour Road. (c) 3gn for each. (d) September 17.

PRUDHOE U.C. (a) (1) Oaklands estate, erection of 14 bungalows and relevant site works; (2) West Wylam estate, site completion works for 89 houses. (b)

Clerk to the Council, 18 South Road, Prudhoe. (c) 2gn. (e) September 28.

RIPLEY U.C. (a) Erection of two old people's bungalows, Woodside Avenue. (3) Surveyor, Town Hall, Ripley, Derby. (c) 2gn. (e) September 30.

ST. ALBANS C.C. (a) Erection of a three-storey block of 12 flats, three bungalows, two shops and nine garages at Park Street. (b) City Engineer, 16 St. Peter's Street. (c) 2gn. (e) October 1.

STEPNEY B.C. (a) Erection of 15 blocks of flats and maisonnettes (11 of four storeys, two of three storeys, one of two storeys and one of nine storeys), comprising in all 246 dwellings, at Smithy Street housing scheme. (b) Riches & Blythin, architect, 16 Northumberland

Avenue, London, W.C.2. (c) 10gn. (e) October 6.

STOCKPORT B.C. (a) Erection of a kitchen at St. Michael's R.C. Secondary School, Nangreave Road. (b) Borough Architect, Town Hall. (e) October 7.

SWANSEA B.C. (a) Erection of a chemistry, physics and metallurgical block at the Technical College, Mount Pleasant. (b) Borough Architect, The Guildhall. (c) 5gn. (d) September 18.

WALTHAMSTOW B.C. (a) Contractors wishing to be placed on the list of housing contractors should apply, giving particulars of contracts which have been completed or are in progress, together with the names of architects or authorities for whom the work has been, or is, being carried out. (b) Town Clerk, Town Hall, E.17. (d) September 18.

YORK C.C. (a) Erection of eight shops, eight maisonnettes, eight old people's dwellings, etc., at The Groves Redevelopment Area. (b) E. Firth, City Architect, 8 St. Leonard's Place, York. (c) 3gn, by cheque, payable to York Corporation. (e) September 28.

PLACED

Notes on contracts placed state locality and authority in bold type with (1) type of work (2) site, (3) name of contractor and address, (4) amount of tender or estimate. † denotes that work may not start pending final acceptance, or obtaining of licence, or modification of tenders, etc.

BIRMINGHAM C.C. (1) Erection of St. George's C.E. Junior School. (3) F. Deeley Ltd., 210 High Street, Harborne, Birmingham, 17. (4) £50,019.

BIRMINGHAM C.C. (1) Six shops and 24 dwellings. (2) Garretts Green. (3) W. J. Simms, Son & Cooke Ltd., 133 Marshall Lake Road, Shirley, Solihull, Warwickshire. (4) £76,481.

BLACKBURN B.C. (1) 100 flats, eight houses. (2) George Street, West Street, etc. (3) Direct labour. (4) £141,372.

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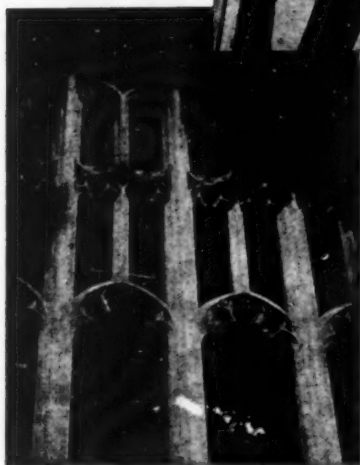
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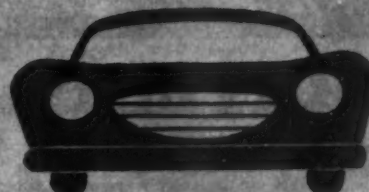
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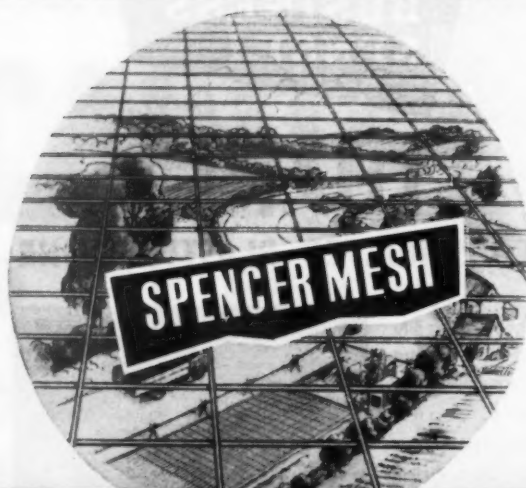
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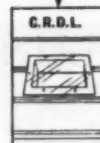
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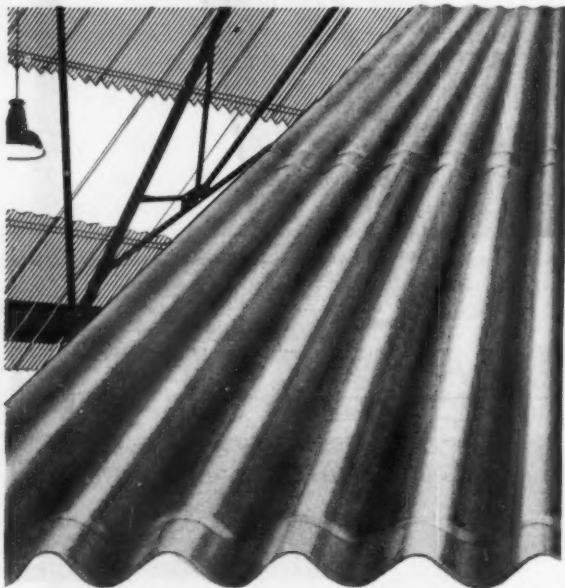
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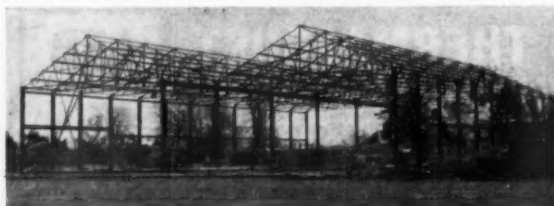
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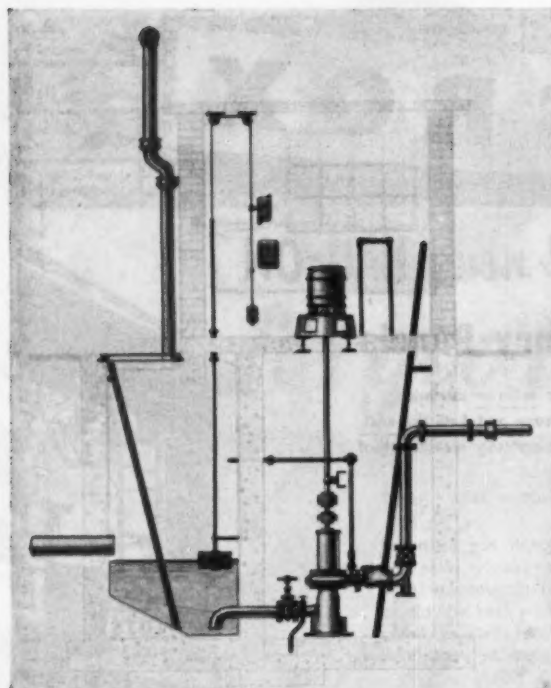
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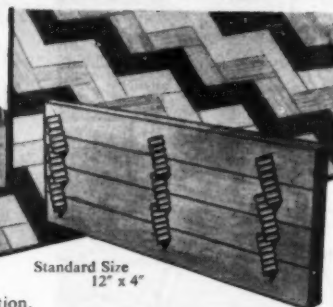
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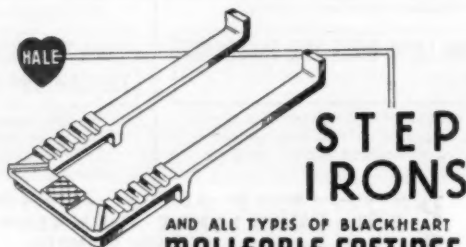
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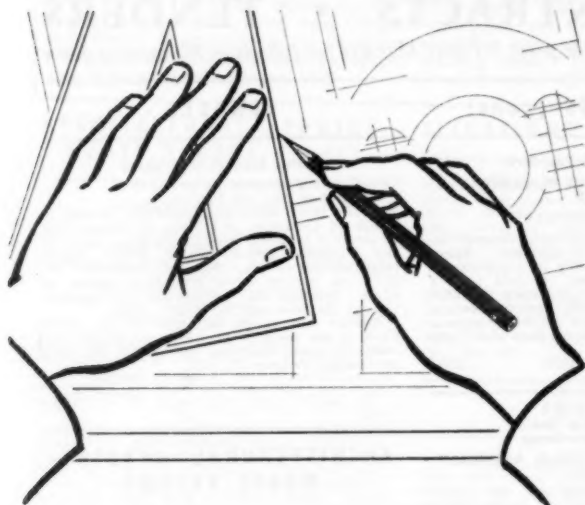
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REQUIRED for maintenance and restoration work on historic buildings owned by Council and also for making measured drawings for survey of London. Candidates should have knowledge of historical architectural detail and special interest in the work. Experience in maintenance of buildings an advantage for the maintenance posts. Starting salaries according to qualifications and experience.

Particulars and application form from Hubert Bennett, F.R.I.B.A., Architect to Council, EK/79/59, County Hall, S.E.1. (1904) [5561]

City of Birmingham Education Committee MATTHEW BOULTON TECHNICAL COLLEGE

Suffolk Street, Birmingham, 1

Principal:

J. C. Martin, M.A., A.M.I.E.E., A.M.Brit.I.R.E. APPLICATIONS are invited for appointment as ASSISTANT TEACHER in the Science and Building Department. The post will be Grade "A" or "B" according to the qualifications and experience of the successful applicant.

The person appointed will be required to teach various subjects up to S.3 standard mainly in the Professional Building Courses (Civil and Municipal Engineering, R.I.C.S., Public Health Inspectors and Institute of Housing), and it is desirable that he should be able to take up the appointment as soon as possible.

Applicants should possess a minimum qualification of Higher National Certificate in Building (either General Building or Quantity Surveying Sections) and should have had appropriate industrial experience.

Salary in accordance with the Burnham Technical Scale: Grade "A" £498 15s by £26 5s to £945, Grade "B" £682 10s by £25 5s to £1,076 5s, plus additions and allowances as appropriate.

There will be an upwards revision of the above scales on October 1, 1959.

Application forms and further particulars may be obtained from the Principal to whom the completed forms should be returned as soon as possible.

E. L. RUSSELL,
Chief Education Officer. [5586]

APPOINTMENTS (cont)

County Borough of East Ham PRINCIPAL ASSISTANT PLANNING OFFICER

Grade APT III, £880/£1,065

VACANCY in Borough Engineer's Department. London Weighting paid in addition. Salary above minimum paid according to qualifications.

Subsistence allowance may be paid over a reasonable period to person appointed if unable to obtain suitable housing accommodation, necessitating the maintenance of two homes.

Details and application form from the Town Clerk, E.6.
Closing date October 2, 1959. [5593]

North-Western Gas Board South Lancashire Group

HEATING AND VENTILATING ASSISTANT (GROUP)

APPLICATIONS are invited for the above pensionable appointment at a salary within Grades A.P.T.7/8 (733/£853 p.a.).

Applicants should have heating and ventilating experience and be able to carry out the drawings and ancillary work required by the Sales and Service Department, particularly in connection with the application of small bore central heating and warm air systems to new housing schemes.

Detailed applications, giving the names of two referees, should reach the General Manager, South Lancashire Group, North-Western Gas Board, Radiant House, Cotham Street, St. Helens, within 14 days. [5585]

The Royal Infirmary of Edinburgh and Associated Hospitals

ARCHITECTURAL ASSISTANT

APPLICATIONS are invited from experienced candidates preferably holding the Intermediate Certificate of the R.I.B.A. Starting salary £525/£605 per annum, according to age and experience. Apply to Personnel Officer, Royal Infirmary, Lauriston Place, Edinburgh, 3. [5584]

City of Birmingham

ASSISTANT ARCHITECTS and ARCHITECTURAL ASSISTANTS are required in the City Architect's Department for the design of new civic buildings, schools, technical colleges, etc., and housing schemes (including tall blocks of flats), shopping centres, etc.

Commencing salaries will be within the following scales according to capabilities and experience:

(a) Assistant Architects: Special Scale, £785/£1,070.
(b) Architectural Assistants: S.C. APT I, £630/£785.

Applicants should have passed Parts I and II Final R.I.B.A. for posts (a) and Inter. R.I.B.A. for posts (b) or hold equivalent qualifications.

Pension scheme. Five-day week. Medical examination.

Applications, stating age, present position and salary, qualifications, experience and two referees to the undersigned by October 2, 1959.

A. G. Sheppard Fidler, City Architect, Civic Centre, Birmingham, 1. [5598]

University of Queensland LECTURER IN ARCHITECTURE

APPLICATIONS are invited for the above position. Applicants should have a Degree or Diploma of a recognized school of Architecture, Associate Membership of the Royal Australian Institute of Architects or the Royal Institute of British Architects. Practical and/or teaching experience is most desirable. Teaching duties will involve lecturing and drawing office work with second-year degree students in particular.

Salary range £A1,540/£2,040 p.a.

Further particulars and application forms are obtainable from the Secretary, Association of Universities of the British Commonwealth, 36 Gordon Square, London, W.C.1.

Applications close in Australia and London on October 31, 1959. [5601]

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ALBION HILL REDEVELOPMENT—STAGE 2.

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Tenders are to be delivered to the Town Clerk in the envelope provided, not bearing any name or mark indicating the sender, by noon on Tuesday, October 27, 1959.

W. O. DODD,
Town Clerk. [5591]

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ARCHITECTURAL ASSISTANTS required. R.I.B.A. Inter and Senior Grade respectively. Commercial practice. Five-day week. Salary according to experience. Eric H. Davis, F.R.I.B.A., A.M.T.P.I., Chief Staff Architect, Hillier, Parker, May & Rowden, 77 Grosvenor Street, London, W.1. Mayfair 7666. [5595]

ARCHITECTURAL ASSISTANT, London, Final standard, Industrial and commercial. Progressive and interesting. Salary according to experience and ability. Box 3667. [0079]

ARCHITECTURAL ASSISTANT. Intermediate standard. Busy London office. Good prospects. Box 3668. [0080]

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ARCHITECTURAL ASSISTANT required. Qualified or Final Standard. Industrial and Commercial. Write stating age, experience and salary required to Berry, Crane & Noble, Suckling House, Norwich. [5587]

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ASSISTANT—Intermediate to Final—required for country practice, salary according to experience. Write, with experience, age and salary, to Forsyth Lawson, Cunningham & Partners, 30 Horse Fair, Banbury. [5577]

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RASIN SPENCE & PARTNERS require qualified men with at least two years' office experience and Final Standard Assistants with about five years' experience. Write to 48 Queen Anne Street, W.1, stating experience and salary required. [5589]

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KENT COUNTY COUNCIL require Assistant Architect capable of accepting responsibility and displaying initiative in the design and control of building projects and possessing experience and ability in current problems of design and control of costs. Candidates should be Associates of the Royal Institute of British Architects.

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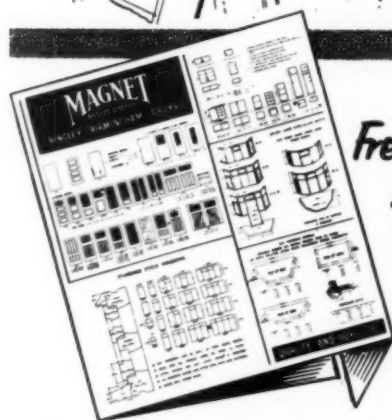
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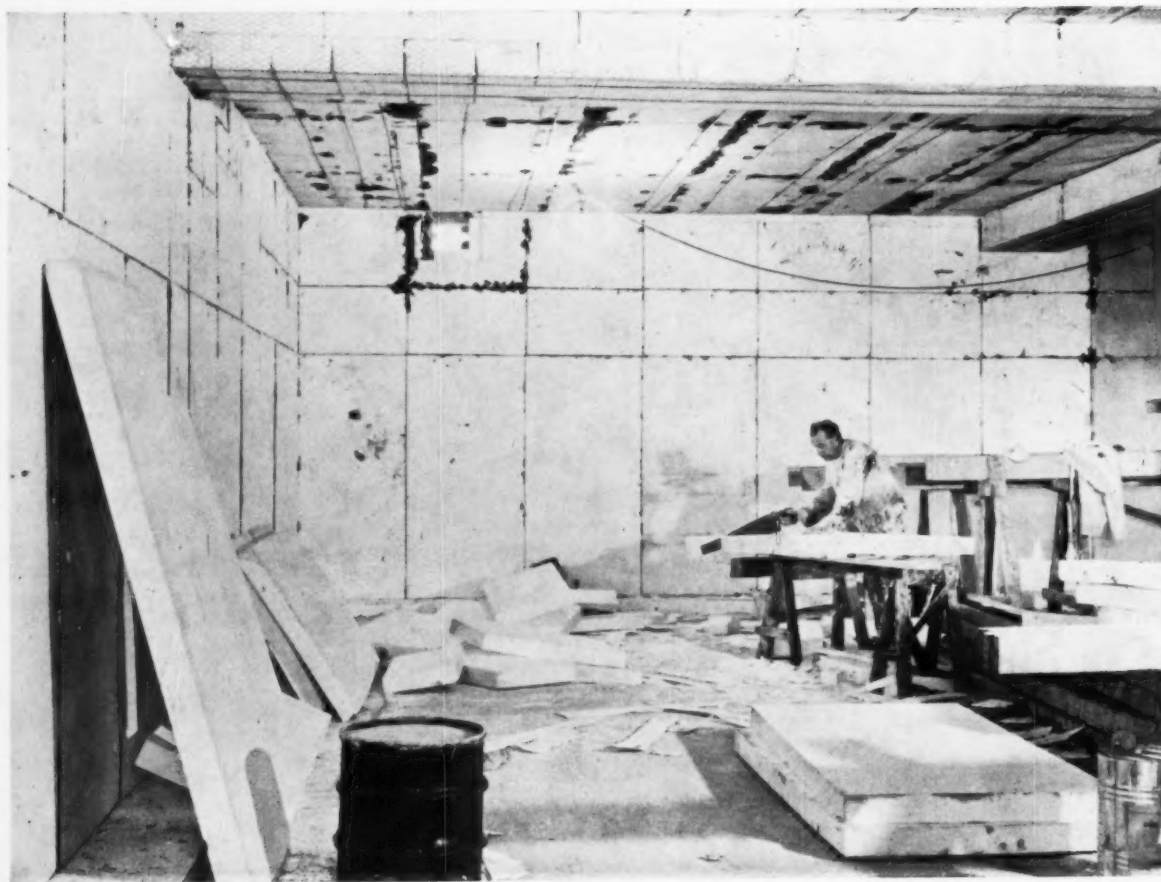
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